GEOTECHNICAL REPORT PISCATAQUA RIVER NAVIGATION IMPROVEMENT PROJECT (AREA 3) CONTRACT NO. DACW33-90-D-0006 JANUARY 2, 1991 DELIVERY ORDER NO. 0002

### PREPARED FOR:

Department of the Army N.E. Division, Corps of Engineers 424 Trapelo Road Waltham, Massachusetts 02254-9149 Athena C. Thomas

PREPARED BY: GZA GeoEnvironmental, Inc. 380 Harvey Road Manchester, New Hampshire

January 1992 GZA File No. 20661 GZA Drilling File No. 14100.2

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### 1.0 SCOPE OF INVESTIGATION

### 1.1 PROJECT



The project included performing probes and borings for the Piscataqua River Navigation Improvement Project (Area 3), located in Portsmouth Harbor, Portsmouth, New Hampshire. The purpose of the explorations was to determine the occurrence of bedrock down to a dredge depth of -37 feet below mean low water (MLW). The project Corps of Engineers contact was Mr. Yuri Yatsevitch.

## 1.2 SCOPE

The scope of work that was requested is provided on Attachment No. 1 of GEB Requisition No. 91-6 as amended on March 5, 1991. These documents are attached in Appendix A. The scope of work performed for this investigation is summarized below:

- a. Performed forty-one machine probes.
- b. Drilled three test borings.
- c. Provided a geotechnical inspector to log the explorations.
- d. Prepared this report.

Survey support and tide gage readings were provided by the Government.

### 2.0 QUALITY CONTROL

### 2.1 CERTIFICATION

GZA GeoEnvironmental, Inc. certifies that the information provided in this report has been reviewed and that to the best of our knowledge, this report documents our actions associated with this project, as well as the data generated.

### 2.2 EQUIPMENT

Two equipment setups were used for this project. The first, Platform 1, was abandoned without completing any machine probes or borings as site conditions would not allow the equipment to move safely to a test location. Platform 2 was used for completing the project. A data sheet for Platform 2 is attached in Appendix B.

### a. Platform 1:

- . 10' x 20' barrel float barge with anchors;
- . 18' metal work boat;
- . 12' aluminum skiff; and
- Acker Model WB skid-mounted drill rig.

### b. Platform 2

- . 73' long work barge "Knotts Island";
- . 18' metal work boat; and
- . Acker Hillbilly drill rig.

### 2.3 PROCEDURES

### 2.3.1 Machine Probes

The forty-one probes consisted of driving a blunt-ended NW-sized drill rod with a 300-pound hammer falling 24 inches. Probes were terminated either at elevation 40 feet (MLW), 50 blows with no penetration, or bouncing refusal. Blow counts were recorded for each foot of penetration in soil down to termination.

### 2.3.2 Borings - B-21, B-31A, B-47

The three borings were drilled in accordance with ASTM Method 1586 using a 24-inch long, 2-inch outside diameter split spoon sampler driven with a 140-pound hammer. Sampling was continuous to the required depth for B-21 and B-31A. Continuous sampling for B-47 extended to refusal in weathered rock, then the boring was advanced an additional 9 feet using NW-sized rock coring methods. The borehole was maintained during drilling with N-sized drill casing. Blow counts were recorded for each 6-inch increment of penetration. Rock coring advance rates were recorded in 1-foot increments.

# 2.3.3 Survey and Depth Measurements

Probe and boring locations were established in the field by the Corps of Engineers surveyors. The drilling platform was positioned as directed by the Corps of Engineers whom then determined the actual probe/boring location. A final location plan of the



probes and borings will be provided by the Corps of Engineers separate from this report. Boring locations provided by the Corps of Engineers are indicated on the logs. Two probes do not have locations (2 and 54).

Reference elevations were provided by the Corps of Engineers from a tide gage located in the vicinity of the site. The tide gage readings reference mean low water (MLW). Tide gage readings were obtained at the start of each probe and are indicated on the logs.



Depths noted on the field logs reference the water surface as 0 feet. Probes were generally completed within 15 minutes of the respective tide gage reading. Borings took longer to drill; subsequently, tide gage elevations were obtained before and after the boring was drilled and are noted on the logs.

Water depths were obtained at the start of each probe or boring by dropping a 300-pound weight and tape to the bottom and measuring the distance to the water surface.

### 3.0 SUMMARY OF DAILY ACTIVITIES

Site work was performed in two phases.

Phase 1 January 13 through January 24, 1991 used Platform 1. No drilling was performed from this platform or during this phase due to rough water relative to the size of the Platform 1.

Phase 2 March 27 through April 11, 1991 used Platform 2.

A daily summary of activity at the site is provided on Table 1.

### 4.0 CHAIN OF CUSTODY

Soil and rock samples recovered from the borings were transported by the driller to GZA Drilling, Inc. in Brockton, Massachusetts until completion of the drilling. The samples were then delivered to the Corps of Engineers, 424 Trapelo Road, Waltham, Massachusetts. Rock core was delivered on July 29, 1991 as indicated on the transmittal attached in Appendix C.

# 5.0 FIELD LOGS

Field logs were developed by the geotechnical inspector in the field. The logs were typed and reviewed for quality control in the office. The typed logs are attached in Appendix D.



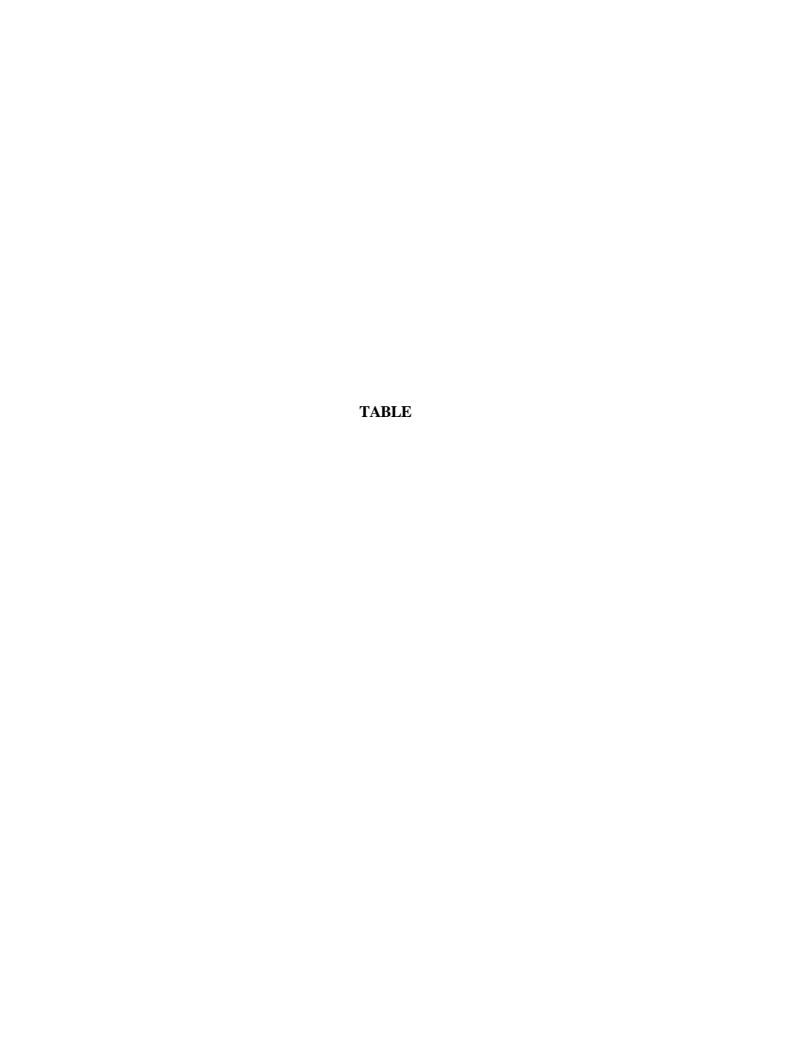


TABLE 1 SUMMARY OF DAILY ACTIVITIES

DATE	1	ME Γ/END	STANDBY (hrs)	WORK (hrs)	LOCATION BORING/PROBE	DAILY TOTAL DRILLED (ft)	COMMENT
1/13/91						0	11
1/14/91	1200	1400				0	2
1/15/91	0700	1500	ı			0	2
1/16/91	0700	1300	6			0	3
1/17/91			2			0	
1/21/91	0500	0930	4			0	3
1/22/91	0700 1500		8			0	4
1/23/91	91 0930 173					0	5
1/24/91	0600 1300					0	6
3/26/91			1			0	
3/27/91	0700	1730	7.5	0.5		0	7
3/28/91	0700	1500	5			0	8,9
3/29/91	0700	1830	3.2	8	2,3A,5	98.9	10
4/1/91	0700	1530		8	19A,23A,25,27,29A	212.0	
4/2/91	0700	1530		8.3	13,14,15,16A,18,30,32,33	326.8	10
4/3/91	0600	1830		12.5	34,35,36,37,38,39,40	300.1	
4/4/91	0700	1530		7.8	21	41.6	
4/5/91	0700	1530		6.6	42,43,44,45,50,52	178.5	
4/8/91	0600	1900		13	7A,8,9A,11,12,31A	204.8	11
4/9/91	0700	1530		8	2A,41,49,51,53,54	162.0	
4/10/91	0700	1530		8	46,47	46.6	
4/11/91	0700	1530	2			0	12

### Comments:

- 1. Mobilization to site and meet with Steve Johnson (Corps of Engineers) to review job.
- 2. Assemble Platform 1 float barge and equipment check out.
- 3. Repair leaky boat.
- 4. Water too rough to work with Platform 1.
- 5. Water too rough for Platform 1. Meet with Corps of Engineers to discuss job.
- 6. Demobilize Platform 1 and equipment from site.
- 7. No drilling, current too strong.
- 8. Added drill rod guide to hold rods in strong current.
- 9. No drilling, thick fog.
- 10. Current too strong to lift anchors and move.
- 11. Thick fog in morning delayed start to 1000 hours.
- 12. Demobilization.

# APPENDIX A

REQUESTED SCOPE OF WORK AND AMENDMENT

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9. CONTRACTOR	?	CODE	. ₹ØØØJ588	FACILITY CODE	1	Ø.DELIV8 Se∈	R TO FOB F Block 19	į.	11.MARK [F 3US. [S [ ] SMALL [ ] SMALL DISAD-
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	.5 W. CHESTNUT CKTON, MA ⊕24					3. MAIL SEE BLOC	INVOICES 1	0	
14. SHIP TO Geotechnical	. Engin <del>se</del> ring	CODE	GEB	15. PAYMENT WILL a Finance & Account	ing Officer		CODE FAC		MARK ALL PACKAGES AND PAPERS WITH
Division, En Directorate, DACW3370000	gineering at issuing a	office		U.S.A. Engr. Div. 424 Trapelo Road Waltham, %A ∂225	-	nd			CONTRACT OR ORDER NUMBER
15. DELIVERY	X This deli to terms	ivary order is i and conditions	ssued on anothe of above number	r Sovernment agency ed contract.	or in acco	rdance a	ith and su	bject	
FURCHASE	Reference	•							specified herein.
ACCEPTANCE. OR IS NOW M	THE CONTRACT ODIFIED, SUBJ	TOR MEREBY ACCEPTIECT TO ALL OF T	TS THE OFFER A HE TERMS AND CO	EPRESENTED BY THE N NDITIONS SET FORTH,	UMBERED PURI AND AGREES	CHASE OR TO PERF	DER AS IT ORM THE SA	MAY PREVIOU ME.	SLY HAVE BEEN
NAME O	F CONTRACTOR x is marked,	supplier must s	SIGNATURE ign Acceptance	and return the fol		NAME AN			DATE SIGNED
17. ACCOUNTI	NG AND APPROP	RIATION DATA/LO 96X3122 Const	CAL USE ruction General	CE CIVIL 88001304J	APAØØ3 (MD)	AE 285			
18. ITEM NO.	19.	SCHEDULE OF	SUPPLIES/SERVI	CE	20. QUANTITY ORDERED ACCEPTED	/ UNIT	22. UNIT	PRICE	23. AMOUNT
	to complete Portsmouth H accordance w	ssary supplies four (4) test b arbor, New Hamp ith attached Sc s "ATTACHMENT N NO. 91-6"	orings in shire, in ope of Work						
000702	SEOTECH 50% OF DELIVERY DAT		RICE EXPRESSED ( OR 3603) Deliv	AS very Order 0002	1	JB	39	39. 99909 <b>9</b>	<i>1909.3</i> €
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D Form 1155, J	TUIL 87	Prev	rious editions a	re obsolete.		CONTRAC	TOR MUST S	SUBMIT FOUR	COPIES OF INVOIC

#### ATTACHMENT NO. 1

### GEB REQUISITION NO. 91-6

### SCOPE OF WORK

PROJECT: Probes and borings.

<u>SITE</u>: Portsmouth Harbor, Piscataqua River Navigation Improvement Project (Area 3) (Figure 1)

<u>PURPOSE</u>: To determine occurence of bedrock down to dredge depth of -37 feet MLW.

### 1. SCOPE OF INVESTIGATIONS.

- A. Fifty machine probes using a 300-pound hammer shall be done at the locations shown on maps provided separately. Probe locations are generally on a 50-foot grid. Depths shall be to -40 feet MLW or refusal. Refusal is defined as 50 blows with no penetration or bouncing refusal.
- B. Four test borings shall be drilled to -40 feet MLW or until 10 feet of rock core has been recovered. Boring locations are shown on maps provided separately. Up to four additional test borings shall be drilled to verify probe results at locations to be determined in the field by the Government.
- C. The Contractor shall provide a geotechnical inspector to log the explorations and prepare a report.
- D. Survey support shall be provided by the Government. The Contractor shall place Government-furnished EDM mirrors on board the floating plant for use in positioning over the exploration points. The Government shall set up tide gages. Communication between floating plant and shore shall be by radio.
  - E. Work shall be performed between January 14 and February 15, 1991.
- 2. <u>SITE\_CONDITIONS</u>. The site is in open water in Portsmouth Harbor (Figure 1). Water depths at exploration locations vary from about -8 feet MLW to -30 feet MLW. The mean tide range is 8.4 feet and the spring range is 9.7 feet. The average current velocity at peak tide periods in the main channel varies from 2.6 to 4.0 knots. The work site is well protected from wind and wave attack.
- 3. <u>RIGHT-OF-ENTRY</u>. Right-of-entry have been obtained by the Government.
- 4. <u>COORDINATION</u>. The Corps of Engineers points-of-contact are Yuri Yatsevitch at 617-647-8387 for field work and Steve Johnston at 617-647-8527 for surveys. The Government points-of contact shall be notified one week prior to the start of field work.

# GZA DRILLING, INC.

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ITEM	NO. SCHEDULE OF SUPPLES/SERVICES	QUANTITY	UNIT	UNIT-PRICE	AMOUNT	
ØØØ3	(continued)			· · · · · · · · · · · · · · · · · · ·		
	**CONTRACT DELIVERY DATE:02/15/91			•		
ØØØ4	GEOTECHNICAL INSPECTOR - STANDBY TIME	32	HR	48. ୭୭୭୭୭୭	1536.00	
	**CONTRACT DELIVERY DATE:02/15/91					
ØØØ5	PER DIEM - OVERNIGHT STAY	17	HR	<u> </u> ୫୭. ୭୭୭୭୭୭	1020.00	
	**CONTRACT DELIVERY DATE:02/15/91					
ØØØ6	MILEAGE FROM WALTHAM, MA AND RETURN	309	MI	2.000000	<b>600.</b> 00	
	**CONTRACT DELIVERY DATE:02/15/91					
0015	SAMPLE DELIVERY	1	JB	125.000000	125.00	
,	**CONTRACT DELIVERY DATE: 02/15/91					
ØØ16	MOBILIZATION AND DEMOBILIZATION	1	JB	300 <b>.0000</b> 000	300.00	
	**CONTRACT DELIVERY DATE: 02/15/91					
ØØ18	MILEAGE FROM/TO CONTRACTOR'S MAIN EQUIPMENT STORAGE SITE. SITE LOCATED IN BROCKTON, MA. **CONTRACT DELIVERY DATE: 02/15/71	300	MI	2.000000	<b>690.9</b> 0	
<b>0</b> 020	STANDBY TIME/ON SITE MOVES	16	HR	130.000000	2080.00	
	**CONTRACT DELIVERY DATE:02/15/91					
ØØ28	12 FT. BOAT	17	DA	150.000000	2550.00	
	**CONTRACT DELIVERY DATE: 02/15/91		<b>.</b> .			
0027	16 FT. BOAT	7	DΑ	175.000000	1225.00	
	**CONTRACT DELIVERY DATE:02/15/91					
ØØ3Ø	OPERATOR FOR 12 FT. OR 16 FT. BOAT	7	DA	290.000000	2030.00	
	**CONTRACT DELIVERY DATE:02/15/91					
0031	STANDBY TIME	8	HR	36.250000	290.00	

# GZA DRILLING, INC.

ITEM	NO. SCHEDULE OF SUPPLES/SERVICES	QUANTITY	UNIT	UNIT-PRICE	AMOUNT
ØØ31	(continued)				
	**CONTRACT DELIVERY DATE:02/15/91				
ØØ33	320 SQUARE FOOT FLOAT	1	JB	1000.000000	1000.00
	**CONTRACT DELIVERY DATE: 02/15/91		•		
ØØ34	MOBILIZATION AND DEMOBILIZATION FOR 320 SQUARE FOOT FLOAT	1	JB	3000,000000	3000.00
	**CONTRACT DELIVERY DATE:02/15/91				
Ø035	ON-SITE MOVES	1	JB	1200.000000	1200.00
	**CONTRACT DELIVERY DATE:02/15/91				
Ø043	0 - 30 FT. DEPTH	120	LF	18.000000	2160.00
	**CONTRACT DELIVERY DATE:02/15/91				
ØØ56	MACHINE PROBES, 300 LB. HAMMER (5 FT. MINIMUM TO 40 FT. MAXIMUM DEPTH)	89%	LF	7.000000	5600.00
	**CONTRACT DELIVERY DATE:02/15/91				
ØØ62	BX, NX SIZE	120	LF	11.000000	1320.00
	**CONTRACT DELIVERY DATE:02/15/91				
ØØ81	BWX SIZE AND/OR BWM	80	LF	3Ø.000000	2400.00
	**CONTRACT DELIVERY DATE:02/15/91				

AMENDMENT OF SOLICITATION/MOD	IFICATION OF CONT	RACT	1. CONTRACT ID CO	PAGE OF PA	GES
2. AXA MOXENT/MODIFICATION NO. 0002-01	3. EFFECTIVE DATE 03/05/91	4. REQUISITION/PURCHAS	E REQ. NO.	S. PROJECT NO. (If applicable)	
6. ISSUED BY CODE	961316	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	OM X DE X LYCHOLE X	CODE EMPTY	
Cont. of the Army	701310	PROJECT: Inc	iefinite Deli	very Contract	
Dept. of the Army		for Services		•	
N. E. Divisi <b>on, Corps</b> of Eng	rs	E .	• •		
424 Trapelo Road		t e		Work, Various	
Waltham, MA 02254-9149		Locations in	New England		
Buyer/Symbol: Thomas/CENED-CT-	C Phone: 617-	647-8747			
8. NAME AND ADDRESS OF CONTRACTOR (No., street, cou		<u> </u>	O SA AMENDMEN	T OF SOLICITATION NO.	
V	,		100		
GZA DRILLING, INC.			98. DATED (SEE	ITEM 11)	-
1215 W. CHESTNUT STREET					
BROCKTON	MA 02401-		10A. MODIFICAT	ION OF CONTRACT/ORDER NO.	
BROCK I ON	PDR 02401-		X DACW33-90-	-0-0006 0002	2
Vendor ID 00003588.			^		
			10B. DATED (SE	ITEM 13)	
		}	00 077	10	
			90 SEP	10	
	ACILITY CODE				
11. THIS  The above numbered solicitation is amended as:	ITEM ONLY APPLIES TO A				
Offers must acknowledge receipt of this amendment (a) By completing Items 8 and 15, and returning submitted; or (c) By separate letter or telegram whic MENT TO BE RECEIVED AT THE PLACE DESIGNA	copies of the amendment includes a reference to the TED FOR THE RECEIPT O	ent (b) By acknowledging the solicitation and amendm F OFFERS PRIOR TO THE	receipt of this amend ent numbers. FAILU HOUR AND DATE S	iment on each copy of the of RE OF YOUR ACKNOWLED PECIFIED MAY RESULT	ffer G-
IN REJECTION OF YOUR OFFER. If by virtue of thi letter, provided each telegram or letter makes refere	is amendment you desire to noe to the solicitation and t	r change an oner already s nis amendment, and is rec	eived prior to the one	ge may be made by lelegran ining hour and date specified	i Oi d
12. ACCOUNTING AND APPROPRIATION DATA (If required)	nos to the solicitation and the	no amendment and lo rec	Citad prior to die ope	mig nour and date opcome.	
	onstruction General CE	CIVIL BB001304JAPA003	(MD) AE 285	\$10,107.00	
	PLIES ONLY TO MO THE CONTRACT/OR				
(X) A. THIS CHANGE ORDER IS ISSUED PURSUANT TO:	(Specify authority) THE CHAN	GES SET FORTH IN ITEM 14 A	RE MADE IN THE CONT	IACT ORDER NO. IN ITEM 10A.	
B. THE ABOVE NUMBERED CONTRACT/ORDER IS A SET FORTH IN ITEM 14, PURSUANT TO THE AUTH	MODIFIED TO REFLECT THE AI ORITY OF FAR 43, 103 (b).	DMINISTRATIVE CHANGES (su	ich as changes in paying o	ffice, appropriation date, etc.)	
c. THIS SUPPLEMENTAL AGREEMENT IS ENTERED  X Contract Clause I.45, CHA					
D. OTHER (Specify type of modification and authority)					
	🔀 is required to sign this d		2 copies to the iss		
14. DESCRIPTION OF XXPANXE KYMODIFICATION (Organic	zed by UCF section headings, in	cluding solicitation/contract sub	ect matter where feasib	e.)	
(Modification is necessary because	the site conditions f	or drilling were			
found to be more adverse than anti	cipated requiring a la	rger floating			
plant. Since the currents are too	•	-			
	-	<del>-</del>			
with spud anchors is needed. An e	equitable adjustment in	amount and time is			
warranted therefor.)				•	
		14 on hambed		force and offer	
Except as provided herein, all terms and conditions of the doc. 15A. NAME AND TITLE OF SIGNER (Type or print)	iment reserenced in Item 9A of 10	16A, NAME AND TITLE OF C			
				f Contracting	
GZA DRILLING, INC.					NED
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	188. UNITED STATES OF AN	A) I. A	18C. DATE SIG	7420
(Signature of person authorized to sign)		By (Signature of Con	tracting Officer)	5 MARG	71
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### SF 30 CONTINUATION SHEET

DELIVERY ORDER NO. 0002: 1/ The Line Items listed below are changed to read as follows:

	SCHEDULE OF SUPPLIES/SERVICES				ESTIMATED AMOUNT
0003	GEOTECHNICAL INSPECTO	OR 90	HR	50.00	4,500.00
0004	GEOTECHNICAL INSPECTO STANDBY TIME	DR 16	HR	48.00	768.00
000702	GEOTECHNICAL REPORT (PRICE EXPRESSED AS 50% OF LINE ITEM 0003	n 1	JR	2 250.00	2,250.00
0016	MOBILIZATION AND			·	·
	DEMOBILIZATION	2	JB	•	
0028	12 FT. BOAT	10	DA	150.00	1,500.00
0043	0 - 30 FT. DEPTH	50	LF		900.00
0056	MACHINE PROBES, 300 L HAMMER (5 FT. MINIMUM				
	40 FT. MAXIMUM DEPTH)	500	LF	7.00	3,500.00
0062	BX, NX SIZE	50	LF	11.00	550.00
2/ Add the	following new Line It	ems:			
0038	1500 SQ. FT. BARGE WI SPUD ANCHORS	TH 7	DA	1,500.00	10,500.00
0039	STANDBY TIME FOR 1500 FT. BARGE WITH SPUD	sq.			
	ANCHORS	70	HR	187.50	13,125.00
0082	NUX SIZE AND/OR NUM	50	LF	40.00	2,000.00
3/ Delete	the following Line Item	ns:			
0005	PER DIEM OVERNIGHT STAY	17	HR	60.00	1,020.00

••.

0034 MOBILIZATION AND DEMOBILIZATION FOR 320 SQ. FT.
FLOAT 1 JB 3,000.00 3,000.00

0035 ON-SITE MOVES 1 JB 1,200.00 1,200.00

0081 BWX SIZE AND/OR BWM 80 LF 30.00 2,400.00

<sup>4/</sup> The ESTIMATED TOTAL (BLOCK 25) is increased by "\$10,107.00."

<sup>5/</sup> Substitute the Scope of Work for Delivery Order 0002 entitled "ATTACHMENT NO. 1, GEB REQUISITION NO. 91-6 SCOPE OF WORK," with "ATTACHMENT NO. 1, GED REQUISITION NO. 91-6, REVISED SCOPE OF WORK, dated 26 February 1991."

#### ATTACHMENT NO. 1

#### GED REQUISITION NO. 91-6

REVISED SCOPE OF WORK 26 FEBRUARY 1991

PROJECT: Probes and borings.

SITE: Portsmouth Harbor, Piscataqua River Navigation Improvement Project (Area 3).

PURPOSE: To determine occurrence of bedrock down to dredge depth of -37 feet MLW.

### 1. SCOPE OF INVESTIGATIONS.

- a. Up to thirty-eight machine probes using a 300-pound hammer shall be done at the locations shown on a map provided separately and as directed in the field by the Government. Probes are on 25-, 50- and 75-foot spacings. Depths shall be to -40 feet MLW or refusal. Refusal is defined as 50 blows with no penetration or bouncing refusal.
- b. Four test borings shall be drilled to -40 feet MLW or until 10 feet of rock core has been recovered. Boring locations are shown on a map provided separately. One additional test boring shall be drilled to verify probe results at a location to be determined in the field by the Government.
- c. The Contractor shall provide a geotechnical inspector to log the explorations and prepare a report.
- d. Survey support shall be provided by the Government. The Contractor shall place Government-furnished EDM mirrors on board the floating plant for use in positioning over the exploration points. The Government shall set up tide gages. Communication between floating plant and shore shall be by radio. The Contractor shall contact the Government in advance of field operations to establish the procedures for radio communication.
  - e. Work shall be performed between January 14 and March 30, 1991.
- 2. SITE CONDITIONS. The site is in open water in Portsmouth Harbor. Water depths at exploration locations vary from about -8 feet MLW to -30 feet MLW. The mean tide range is 8.4 feet and the spring range is 9.7 feet. The average current velocity at peak tide periods in the main channel varies from 2.6 to 4.0 knots. The work site is well protected from wind and wave attack.
- 3. RIGHT-OF-ENTRY. Right-of-entry has been obtained by the Government.

4. COORDINATION. The Corps of Engineers points-of-contact are Yuri Yatsevitch at 617-647-8387 for field work and Steve Johnston at 617-647-8527 for surveys. The Government points-of contact shall be notified one week prior to the start of field work. The field inspector shall provide daily telephone reports to Mr. Yatsevitch on the progress of work. The Contractor shall notify the Coast Guard regarding his operation in the Harbor.

# APPENDIX B

EQUIPMENT DATA SHEETS



JEHE TROPERNO

# Boston Waterbus Services, Inc.

19 Revere Street

Lexington, Massachusetts 02173

(617) 862-7973

Specification Sheet - "KNOTTS ISLAND"

Listed are the basic built-in features which are pertinent to your work :

- 1. U.S.C.G. inspected & licensed for passengers & cargo
- 2. 73' length 28' beam 4'6" draft
- 3. 18' x 66' open deck space
- 4. approx. 500 sq.ft. inside heated space including living accommodations
- 5. 15 cfm @ 125 psi filtered compressed air
- 6. 30 KW 115/230 AC power
- 7. 300 gpm @ 60 psi pumping capabilities
- 8. 50 ton potable water
- 9. 10,000 lb capacity hydraulic crane available
- 10. highly maneuverable (excellent for holding on-station)
- 11. Micrologic 5500 Loran C
- 12. VHF radio
- 13. Radar



# APPENDIX C

SAMPLE TRANSMITTAL

# drilling inc.

BROCKTON, MASSACHUSETTS 02401 (508) 583-8522 WE ARE SENDING YOU 

Attached 

Under separate cover via \_\_\_\_\_\_the following items: ☐ Prints ☐ Plans □ Samples □ Specifications ☐ Shop drawings □ Copy of letter ☐ Change order COPIES DESCRIPTION DATE NO. THESE ARE TRANSMITTED as checked below: □ Approved as submitted ☐ Resubmit\_\_\_\_copies for approval ☐ For approval □ Approved as noted ☐ Submit \_\_\_\_\_copies for distribution ☐ For your use ☐ Returned for corrections ☐ Return \_\_\_\_\_corrected prints ☐ As requested ☐ For review and comment REMARKS \_\_\_\_\_

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LETTER OF TRANSMITTAL

If enclosures are not as noted, kindly notify as at one

APPENDIX D

FIELD LOGS

	GZA DRILLING, INC.  1215 W. CHESTNUT ST., BROCKTON, MA 02401 (A DIVISION OF GZA GEOENVIRONMENTAL, INC.)					01 _	PORTSMOU	OJECT EA #3 TH HARBOR OUTH, NH			PROBE SHEET FILE CHKD.	1 OF 2 No. 14100.2
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	GZA DRILLING, INC.  1215 W. CHESTNUT ST., BROCKTON, MA 02401 (A DIVISION OF GZA GEOENVIRONMENTAL, INC.)						PROJECT AREA #3 PORTSMOUTH HARBOR PORTSMOUTH, NH					PROBE NO. 3A SHEET 1 OF 1 FILE NO. 14100.2 CHKD. BY JEH			
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GZ	A	-/ M	AY OCCU	R DUE TO	OTHER FACTORS TH	AN THOSE PR	ESENT A	THE TIM	E MEASUREM	ENTS WER	RE MA	DE	. J. GRO	PROBE NO. 8

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PRO	BE:	UNL	ESS OTH		ED, PROBING ACCO	MPLISHED USI			DWATER READINGS				
		NW	ROOS, D	RIVEN WITH	300 #WT FALLING	24 INCHES.		DATE	TIME	WATER	CASING	STABILIZATION T	
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Bĺ	OWS/F	R SOI Dens	ity	Blows	HESIVE SOILS ft Density	REMARKS:	Tide +3.7 at 1	635 hours.	1 <b>278</b> has			REFUSAL	
	- 4	٧.	LOOSE	< 2	V. SOFT	<b>3</b> :	Tide +3.7 at 1 Depth of water Bouncing refus	al encounte	ered at	33.0',	50/0".		
	4-10 10-30	М.	LOOSE	2- 4 4- 8	SOFT M. STIFF								
	30-50 50	٧.	DENSE DENSE	8-15 15-30 > 30	V. STIFF HARD	PROB	E LOCATION: 8	1007.0177(N	ij 3487	ər.479(	(5)		

	(	1215	J. CHES	INUT ST B	3, INC. BROCKTON, MA 02- NVIRONMENTAL, I	401 NC.)		PORTSMOU	ROJECT REA #3 ITH HARBOR HOUTH, NH			PROBE SHEET FILE CHKD.		
CLA	EMAN: SSIFI PECTO	ED BY	: =		ENLING PORTER			BORING LI GROUND SI DATE STA	OCATION URFACE ELEV RT <u>4/8/91</u>	VATION	USA CORI	DATUM:	GINEERS WATER SURFACE /8/91	
PRO	3E:	UNI	LESS OT	HERWISE NOT	TED PROBING AC	COMPLISHED	USING			GRO	NUNDWATE	R READI	NGS	
		NW	KUDS,	NKIAEN MILL	H 300 #WT FALLI	NG 24 INCHE	5.		DATE	TIME	WATER	CASING	STABILIZATION TIME	
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GR	ANUL	AR SOI	LS		HESIVE SOILS	REMARKS	3: <u> </u>	., =-						
Blc	WS/F	t Dens	ity	Blows	/Ft Density	<b>-</b> -	Tide Depth	+4.3' of water	at 1700 ho 28' At 17	ours 700 hours	s			
ō.	- 4 - 10	٧.	LOOSE	< 2 2- 4	V. SOFT SOFT	3.	Bounc	ing refus	al at 37.0	,				
1	0-30	М.	DENSE	4-8	M. STIFF	PR	OBE LOCA	TION: 87	7891.4658(N	34883	4.89370	E)		
	0-50 50		DENSE DENSE	8-15 15-30	STIFF V. STIFF									
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IOTE	s:	1) :	TRATIF	CATION LIN	ES REPRESENT A	PROXIMATE	BOUNDARY	BETWEEN	SOIL TYPES	TRANSI	TIONS M	AY BE GR	ADUAL.	
		2) (	IATER LI	VEL READIN JR DUE TO C	IGS HAVE BEEN MA	ADE AT TIME: HAN THOSE PI	S AND UN Resent A	DER CONDI T THE TIM	TIONS STAT E MEASUREM	ED, FLUC ENTS WER	TUATION	S OF GRO	UNDWATER	
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	(A			RILLING TNUT ST., B of GZA GeoE	ROCKTON, MA 02 nvironmental,	401 Inc.)	PROJECT AREA #3 PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO. 11 SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY
D E P T	CASNG			SAMPLE				RE	
H	N W	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"			REMKS	STRATUM DESCRIPTION
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		_		RILLING				PRÖJECT AREA #3 TSMOUTH HARBOR, ORTSMOUTH, NH	PROBE NO. 12 SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY		
			diary	TNUT ST., BI of GZA GeoE	ROCKTON, MA 02 nvironmental,	401 Inc.)	POF	TSMOUTH HARBOR,			FILE No. 14100.2 CHKD. BY
DEPTH	CASWS			SAMPLE						REMKS	STRATUM DESCRIPTION
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	(	1215 V	. CHEST	NUT ST., BI	, INC. ROCKTON, MA 02 VIRONMENTAL, I	401 NC.)	PROJECT AREA #3  PORTSMOUTH HARBOR  PORTSMOUTH, NH				PROBE NO. 13 SHEET 1 OF 2 FILE NO. 14100.2 CHKD. BY JEH			
CLAS	EMAN: SSIFI PECTO	ED BY:	=		ENLING ORTER		GROUN	G LOCATION D SURFACE EL START 4/2/9	EVATION	USA		S OF ENG	SINEERS WATER SURFACE /2/91	
PRO	BE:	UNI	ESS OT	ERWISE NOT	ED, PROBING AC 300 #WT FALLI	COMPLISHED U	ISING		GR	ROUNDW	ATER	READI	NGS	
		NW	RODS, D	RIVEN WITH	300 #WT FALLI	NG 24 INCHES	S.	DATE	TIME	WA	TER	CASING	STABILIZATION TIME	
CASI	ING S	IZE:			OTHER:					<b>-</b>				
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Ť	N W	No.	PEN./ REC	DEPTH (Ft.)	BLOWS /12"						K	31,7	TION DESCRIPTION	
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1	-10 0-30	H.	LOOSE DENSE	2- 4 4- 8	SOFT M. STIFF		OBE LOCATION:	87902.0286	5(N) 3489	931.6	851(	E)		
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		4.		> 30	HARD	000000000000000000000000000000000000000	20110 101 101		P6 *5****		10 ***	.v ne	ADUAN	
NOTE	s:	1) <u>1</u>	STRATIF	CATION LIN	ES REPRESENT A IGS HAVE BEEN M ITHER FACTORS T	PPROXIMATE   ADE AT TIME:	BOUNDARY BETWE S AND UNDER CO	EN SUIL TYP ONDITIONS STA	ES, TRANS ATED, FLL	SITION UCTUAT	IS M/ TION:	AY BE GR S OF GRO	UNDWATER	
GZ	A	'	TAT ULU	JR DUE 10 0	IINEK PACIUKS I	nam inuse Pi	NESCRI AI INE	TIME MEASUK	EMERIS WE	LRE FIA	7UE		PROBE NO. 13	

	(A				ROCKTON, MA 02 nvironmental,	401 [nc.)	PROJECT AREA #3  PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO. 13 SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY
D E				SAMPLE				RE	·
D E P T H	CASWS	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"			REMKS	STRATUM DESCRIPTION
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		G:	ZA DR	ILLING	, INC.			PI	ROJECT REA #3				PROBE	NO. 14
	(	1215 V A DIVI	. CHEST	NUT ST., BI GZA GeoEN	ROCKTON, MA 02 VIRONMENTAL, I	401 NC.)	_	PORTSMOL	TH HARBOR WOUTH, NH				FILE CHKD.	No. <u>14100.2</u>
CLAS	MAN: SIFI	ED BY	: =		ENLING ACKETT			BORING L GROUND S	OCATION URFACE ELE RT 4/2/91	VATION	USA CI		S OF ENG	INEERS WATER SURFACE 2/91
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NOTE	s:	1)	STRATIF	CATION LIN	ES REPRESENT A IGS HAVE BEEN N THER FACTORS T	PPROXIMATE	BOUNDAR'S AND U	Y BETWEEN	SOIL TYPES	S, TRANS	ITIONS	S MA	AY BE GR	ADUAL. Undwater
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	<b>/</b> A	_		RILLING	, INC. ROCKTON, MA 02 nvironmental,	401	PROJECT AREA #3 PORTSMOUTH HA PORTSMOUTH,	T S RBOR		PROBE NO. 14 SHEET 2 OF 2 FILE No. 14100.2 CHKD. BY
P			GIBI Y	SAMPLE	WIT Grinericat,	inc.)	PORISMOUTH,	NN .	R	CHRD. BY
DEPTH	C B L S V S G S	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"				8 H H K S	STRATUM DESCRIPTION
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		(	_			BROCKTON, MA 024	401 4C.)		A PORTSMO	ROJECT REA #3 UTH HARBOR MOUTH, NH				PROBE SHEET FILE CHKD.	1 0F 2 No. 14100.2
FOR CLA INS	SS	IFI	ED BY	: =		LENLING SACKETT			BORING L GROUND S DATE STA	OCATION URFACE ELEV RT 4/2/91	/ATION	USA (		S OF ENG	GINEERS WATER SURFACE /2/91
PRO	BE	:	UN	LESS OTH	ERWISE NO	TED, PROBING ACT	COMPLISHED	USING			GRO	MONUC	ATER	READI	NGS
			NW	RODS, D	KIVEN WIT	H SUU #WT FALLII	NG 24 INCHE	S.		DATE	TIME	WAT	ER	CASING	STABILIZATION TIME
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	 - 1		٧.	LOOSE	2- 4	V. SOFT SOFT	3:	Bounc	ing refus	al encounte	red at 3	31.7′	, 50	0/0".	
1 3	0- 0-	30 50		DENSE	4- 8 8-15	M. STIFF	PR	OBE LOCA	ATION: 87	7905.8551(N	34903	30.12	88(E	E)	
>	5(	J	۷.	DENSE	15-30 > 30	V. STIFF HARD									
NOTE	s:		1) 5	TRATIFI	CATION LIN	IES REPRESENT AFIGS HAVE BEEN MA	PROXIMATE	SOUNDARY	BETWEEN	SOIL TYPES	TRANSI	TION	S MA	Y BE GRA	ADUAL.
GZ2	A		-/	MY OCCU	R DUE TO	THER FACTORS TH	IAN THOSE PI	RESENT	T THE TIM	E MEASUREME	NTS WER	E MAI	DE	. J. JRU	PROBE NO. 15

	(	1215	. CHES	RILLING TNUT ST., B F GZA GeoEN	ROCKTON, MA 024	01 C.)		AR PORTSMOU	ROJECT REA #3 ITH HARBOR HOUTH, NH	···			PROBE SHEET FILE CHKD.	1 OF 2 No. 14100.2
CLA	EMAN:	ED BY		С. Ц	ENLING			BORING LO		ATION	USA CI		S OF ENG	
PRO	3E :	UNI	LESS OT	HERWISE NOT	ED, PROBING ACC	OMPLISHED U	JSING	· · · · · ·			NUNDUA			
		NW	RODS, i	DRIVEN WITH	300 #WT FALLIN	G 24 INCHES	S.		DATE	TIME	WATI	ER	CASING	STABILIZATION TIME
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DEP	CASW			SAMPLE							1	E E	STRA	TUM DESCRIPTION
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	AMI II	AR SOI	<u> </u>		HESIVE SOILS	REMARKS								
Blo	ws/F	t Dens	ity	Blows/	ft Density	REMAKKS 1. 2.	Tide Depth	+6.8' of water	30.3'					
4 1 3	- 4 - 10 0-30 0-50 50	м.	LOOSE LOOSE DENSE DENSE DENSE	< 2 2- 4 4- 8 8-15 15-30 > 30	V. SOFT SOFT M. STIFF STIFF V. STIFF HARD	3.	Bounci	ng refusa	al encounte 1913.0185(N			•		
NOTE	s:	1) 3	TRATIF	CATION LIN	ES REPRESENT API	PROXIMATE E	BOUNDARY S AND UND	BETWEEN :	SOIL TYPES	TRANSI	TIONS	MA	Y BE GRA	NDUAL. INDWATER

PROBE NO. 164

	(A				ROCKTON, MA 02 invironmental,	(401 (nc.)	POI	PROJECT AREA #3 RTSMOUTH HARBOR PORTSMOUTH, NH	<b>.</b>		PROBE NO 16A SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY
DE	C B			SAMPLE						R	CRED. BY
D E P T H	CASNG	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"					REMKS	STRATUM DESCRIPTION
					23					+	
35					23	1					
"	<u></u>				30	]					
					41						
					71						SOIL
	<u> </u>				57			-			
40					49						,
					110					3	11.11
	igert				60/4"-50/0"					,	41.4' REFUSAL
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		G	ZA D	RILLING	, INC.		PR	OJECT			PROB	E NO. 18
	(	1215 (A DIV	W. CHES	TNUT ST., B F GZA GeoEN	ROCKTON, MA 024 VIRONMENTAL, IN	01 C.)	PORT SMOU	EA #3 TH HARBOR OUTH, NH			SHEE FILE CH <b>KD</b>	T 1 0F 2
CLA	EMAN: SSIFI PECTO	ED BY	: _		ENLING ACKETT		BORING LO GROUND SU DATE STAR	CATION RFACE ELE T 4/2/91	VATION	USA COR	PS OF EN	GINEERS WATER SURFACE /2/91
PRO	8E:	UN	LESS OT			OMPLISHED USING G 24 INCHES.	I	17.277			ER READI	
		NW	RODS,	DRIVEN WITH	300 #WT FALLIN	G 24 INCHES.	Ī	DATE	TIME	WATER	CASING	STABILIZATION TIME
CAS	ING S	IZE:			OTHER:	· · · · · · · · · · · · · · · · · · ·				<u> </u>		
D E P	C B			SAMPLE						RE		
TH	A O N W G S	No.	PEN./ REC	DEPTH (Ft.)	BLOWS /12"					M. K S	STR	ATUM DESCRIPTION
0										1	0'	
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15												
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20												
25								•				
										2	27' —	
				27'-28.5'	WOR 7							
				29.5-30.5	8							
30				30.5-31.5	7							SOIL .
				31.5-32.5	5					-		33.2
				32.5-33.5	10							
GR. Blo	ANULA	AR SOI	LS	COI	ESIVE SOILS Ft Density	REMARKS: 1. Tide	+1.6′					
0-	4		LOOSE	< 2	V. SOFT	2. Depth 3. Probe	of water 2 terminated	27' d at recui	red dept	th.		
10	-10 0-30	М.	DENSE	2- 4 4- 8	SOFT M. STIFF		ATION: 879				4.7790(E)	)
	0-50 50	٧.	DENSE DENSE	8-15 15-30 > 30	STIFF V. STIFF HARD							
NOTE	s:	1) \$	TRATIFI			PROXIMATE BOUNDARY	F BETWEEN S	OIL TYPES	TRANSI	TIONS M	AY BE GP	ADUAL .
		2) (	ATER LE	VEL READING	S HAVE BEEN MAD THER FACTORS THA	PROXIMATE BOUNDARY DE AT TIMES AND UN NN THOSE PRESENT	NDER CONDIT	IONS STATE	D, FLUC NTS WER	TUATION E MADE	S OF GRO	UNDWATER
GZ#	3.											PROSE NO18

		-		RILLING		/ 01	PROJECT AREA #3 PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO 18 SHEET 2 OF 2
			diary	of GZA GeoEr	ROCKTON, MA 02 nvironmental,	Inc.)	PORTSMOUTH HARBOR, PORTSMOUTH, NH		SHEET 2 OF 2 FILE No. 14100.2 CHKD. BY
DEPTH	CASNG			SAMPLE				REM	CTRATUM DECORIOTION
T H	N W	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"			K S	STRATUM DESCRIPTION
				33.5-34.5	10				
35				34.5-35.5	25				
,,				35.5-36.5	33				
				36.5-37.5	40			1	SOIL
				37.5-38.5	52				33.1
				38.5-39.5	30			1	
40				39.5-40.5	44				
		<u> </u>		40.5-41.6	104/13"				41.6
	<u> </u>							1	BOTTOM OF PROBE
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	REMA	RKS:							
GZ#	<b>1</b>								PROSE NO. 18

	(	_		RILLING TNUT ST., BI F GZA GeoEN	, INC. ROCKTON, MA 024 VIRONMENTAL, II	401 NC.)		ĀR RTSMOU	OJECT EA #3 TH HARBOR OUTH, NH			PROBE SHEET FILE CHKD.	NO. 19A 1 OF 2 No. 14100.2 BY JEH
CLAS	EMAN: SSIFI PECTO	ED BY	:		ENLING ACKETT		GRO	JUND St	CATION URFACE ELEV RT 4/1/91	ATTON	USA CO	RPS OF ENG DATUM: ND4	GINEERS WATER SURFACE /1/91
PRO	BE :	UN	LESS OT	HERWISE NOT	ED, PROBING AC	COMPLISHED !	JSING			GRO	TAWDRUK	ER READI	NGS
		NW	RODS, I	DRIVEN WITH	300 #WT FALLI	NG 24 INCHE	5.	ľ	DATE	TIME	WATE	CASING	STABILIZATION TIME
CASI	NG S	IZE:			OTHER:			į				<del>                                     </del>	
DE	C B A L S O		-	SAMPLE			<u> </u>			<b></b> i	RE		
T	SON	No.	PEN./ REC	DEPTH	DI QUE (12)						M K S	STRA	ATUM DESCRIPTION
0	┼	NO.	KEC	(Ft.)	BLOWS /12"		<del></del>				1	0,	
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	$\vdash$	<del> </del>			WOR						-		
30	_				WOR						-		SOIL
	$\vdash$	$\vdash$			WOR								
				_	WOR								
CP.	AMI	AR SOI			HESIVE SOILS	REMARKS	· ·				1		
		t Dens		Blows/	Ft Density	1 1.	Tide +1' Depth of	at 084	5 hours. 27.5' at A	845 hau	rs.		
0-	- 4 -10	٧	LOOSE		V. SOFT	3.	Probe ter	rminate	ed at requi	red dep	th.		
1	0-30 0-50	M.	DENSE DENSE	4- 8 8-15	M. STIFF	PR	OBE LOCATIO	N: 879	18.5658(N)		34927	0.0048(E)	
	50	V.	. DENSE	15-30						*			
NOTE	e.	1 > -	TDATIC			DDDOYIMATE	COUNTABY OF	TUEEN	SOLL TYPES	TRANCT	71005	MAY DE CO	ADUAL
NOTE	<b>:</b>	2)	MATER LI	EVEL READING	ES REPRESENT AI GS HAVE BEEN M THER FACTORS TI	ADE AT TIME:	S AND UNDER	CONDI	TIONS STATE	D, FLUC	TUATIO	NS OF GRO	UNDWATER
GZ:	A	i	TAT UUU	UK DUE 10 0	INCK FACIURS II	nam imuse Pi	LIA INGGS	uc ()M	E MEASUKEME	HIS WEN	C MAUL		PROBE NO. 19A

		_		RILLING			PROJECT ARFA #3			PROBE NO. 19A SHEET 2 OF 2
			diary	NUT ST., BE of GZA GeoEr	ROCKTON, MA 02 nvironmental,	401 Inc.)	PROJECT AREA #3 PORTSMOUTH HAR PORTSMOUTH,	BOR. NH		PROBE NO. 19A SHEET 2 OF 2 FILE No. 14100.2 CHKD. BY
DEPTH	CASMS		,	SAMPLE	<del>,</del>				KEXKO	STRATUM DESCRIPTION
T H	N W G S	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"				K S	
					WOR					
35					WOR					
					WOR					
				: 	14					SOIL
					17					
					29					
40					19					
					16					41'
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<del>75</del> 1	REMA	RKS:								
G71										PROBE NO. 19A

		GZ	A DRILL	ING, INC.					DJECT A #3		REP	ORT OF BO	ORING NO. <u>B-21</u>
	(	1215 A DIV	H. CHEST	NUT ST., BE GZA GeoEN	ROCKTON, MA 020 VIRONMENTAL, I	101 IC.)	PORTS POR	SMOUT	H HARBOR				No. 14100.2 BY JEH
CLA	EMAN: SSIFI PECTO	ED BY	: =		C. LENLING D. PORTER D. PORTER			D SU	CATION AS RFACE ELEV T 4/4	VATION _	A CORPS	DATUM:	NEERS WATER SURFACE 4/91
SAMI	PLER:	UN	LESS OTI	HERWISE NOTI	ED, SAMPLER CO 140 Lb. HAMME	NSISTS OF A	2" SPLIT 0 In.		•	GRO	UNDWATE	R READI	NGS
CAS	ING:	UN	LESS OT		ED. CASING DRI			}	DATE	TIME	WATER	CASING	STABILIZATION TIME
CAS	ING S	-	mmek ral 34 (NW)		OTHER:			<b>-</b>			<u></u>	<del> </del>	
DEP	C B			SAMPLE			SAMPLE DESCR	1071	OH		RE		
Į T	SON	1	PEN./	DEPTH							H K	STR	ATUM DESCRIPTION
H 0	G S	No.	REC	(ft.)	BLOWS/6"	BL	IRMISTER CLASS	IFIC	ATION		S	0,	
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30		s-1	24/6	30.6-32.6	2	gray, tine	y, fine to co le Shells, ch to coarse SA	ange ND,	at 31.67	to		30.6′ -	no callo objetta
			<del>  </del>		3-4	trace Grav	rel - TILL					31.6'_	ND, Silt, Shells
		s-2	24/12		5-3								
		AR SO			HESIVE SOILS Ft Density	REMARK		+1	at 1045 h	ours -			
4	- 4 -10		. LOOSE	2- 4	V. SOFT SOFT		2. Rottom of	unke	ed at 30.6	1.	mples.		<b>70</b> /
3	0-30 0-50 50		DENSE	8-15	M. STIFF STIFF V. STIFF		4. NW rods of BORING LOCATI	irive ON:	n with 30 87925.27	U# weigh 17(N) 3	t, 24" 49336.4	tall fro 269(E)	m 39.6 to 41.6
			. DENSE	> 30	HARD								
NOTE	ES:	1) 2)	STRATIF	ICATION LINE EVEL READING	ES REPRESENT A GS HAVE BEEN M THER FACTORS T	PPROXIMATE ADE AT TIME HAM THOSE D	BOUNDARY BETWE S AND UNDER CO DESENT AT THE	EEN S OND IT	SOIL TYPES	ED, FLUC	TIONS M	AY BE GR	ADUAL. JUNDWATER
GZ.	A		MAT UUC	UK DUE 10 0	INER PAGIURS I	ING I NUSE P	RESERT AT THE	1 1 ME	. HEADUKEA	ERIS WEN	E MAUE		BORING No.B-21

				NUT ST. BR		401	PO	PROJECT AREA #3 RTSMOUTH HARBOR PORTSMOUTH, NH		REPO	RT OF BORING NO. 3-21 SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY JEH
			diary o	of GZA GeoEn	OCKTON, MA 02 vironmental,	Inc.)		PORTSMOUTH, NH	=		CHKD. BY JEH
DEPTH	CASWS			SAMPLE			SAMPLE	DESCRIPTION		R E	OTDATIM OSCODIOTION
T	N W	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/6"	]	RUDMISTED	CLASSIFICATION		K	STRATUM DESCRIPTION
				(100)	3-5	Cored Bou	ider and Til				
		C-1	60/6	34.6-39.6	6 Min			•		_	34.6′
35					3 Min					3	CORED BOULDER
					2 Min						36.0'
		-			2 Min						1166
					2 Min						
40		s-3	24/12	39.6-41.6	18	Very dense some Silt,	e, gray, fir , little Gra	me to coarse SAND, evel - TILL			
					23-32				!	4	14.41
					20						BOTTOM OF BORING
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BORING No.B-21

	(,	1215 W	. CHEST	RILLING NUT ST., BI GZA GEOEN	, INC. ROCKTON, MA 024 VIRONMENTAL, II	401 (C.)		PROJECT AREA #3 WOUTH HARBOR				PROBE SHEET FILE CHKD.	1 OF 2 No. 14100.2
CLAS	EMAN:	ED BY:		Ç. L	ENLING		GROUND	LOCATION SURFACE ELE TART 4/1/91	VATION	USA CO			INEERS WATER SURFACE
PRO			ESS 071			COMPLISHED	<del></del>	1AR1 <u>47.7771</u>		OUNDWA'			
"		NW	RODS,	RIVEN WITH	ED, PROBING ACT 300 #WT FALLI	NG 24 INCHE	S.	DATE	TIME	WATE	_		STABILIZATION TIME
]									-	- Anic	$\hat{-}$	CASING	STABLETEATION TIME
								-	-	-	$\dashv$		
CASI	ING S	IZE:			OTHER:					<u> </u>	_		
Ď	СВ			CAMPLE							<u>የ</u>		
I P	A L S O	ļ	<del></del>	SAMPLE						<b> </b>	4	STRA	ATUM DESCRIPTION
H	N W	No.	PEN./ REC	DEPTH (Ft.)	BLOWS /12"								
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	<b>—</b>	<del> </del>			WOR WOR								SOIL
	PANIII	AR SOI			HESIVE SOILS	REMARK	S:			1			
Blo	ows/f	t Dens	ity		Ft Density	1	Tide +2 Depth of wat	.5'					
	- 4	٧.	LOOSE	< 2	V. SOFT	3	. Bouncing ref	usal encount	ered at	43', 5	50/	0".	
	-10 10-30	M.	LOOSE DENSE	4-8	SOFT M. STIFF	P	ROBE LOCATION:	87929.62250	N)	34	940	8.2069(	E)
1 3	50-50 50		DENSE DENSE	8-15	STIFF	-   ''	. 22 •	<del> •</del>	-			,	
Ľ	J.U			> 30	HARD								
NOTE	ES:	1)	STRATIF	ICATION LIN	IES REPRESENT A	PPROXIMATE	BOUNDARY BETWEE S AND UNDER CO PRESENT AT THE	EN SOIL TYPE	S, TRANS	ITIONS	M	Y BE GR	ADUAL.
0.00	3.	(2	MAY OCC	UR DUE TO C	THER FACTORS T	HAN THOSE P	RESENT AT THE	TIME MEASURE	MENTS WE	RE MAD	E	J OF URU	PROBE NO23A
GZ.	A												FRUBE NU. ZJA

				RILLING	ROCKTON, MA 02	401	PROJECT AREA #3 PORTSMOUTH HARBOR,		PROBE NO. 23A SHEET 2 OF 2 FILE No. 14TDO.2 CHKD. BY
_			diary o	of GZA GeoE	nvironmental,	Inc.)	PORTSMOUTH HARBOR, PORTSMOUTH, NH		CHKD. BY
DEPTH	C B L O W S G S		DEN /	SAMPLE	<u> </u>			REMKS	STRATUM DESCRIPTION
Ĥ	ĞŜ	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"			ŝ	
					WOR		•	İ	
35	<u> </u>				WOR				
					12				
					41				
			:		58				SOIL
					66				
40	<u> </u>				56				
					63				
					62				
					90-50/0"			3	43'
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GZ1	<b>A</b>								PROBE NO. 23A

		Ċ				BROCKTON, MA 024	601 (C.)	PORTSMO	ROJECT REA #3 UTH HARBOR MOUTH, NH				PROBE SHEET FILE CHKD.	1 OF 2	
FORE CLAS INSE	SSI	N: FIE	ED BY:		с.	LENLING SACKETT		GROUND S	OCATION URFACE ELEV RT 4/1/91	AS PER I	USA C		DATUM:	INEERS WATER SURFACE 1/91	
PROE	E:		UNI	ESS OTH	ERWISE NO	TED, PROBING ACC	COMPLISHED US	ING		GRO	NUNDW/	ATER	READI	NGS	
			NW	RODS, D	RIVEN WIT	H 300 #WT FALLIN	NG 24 INCHES.		DATE	TIME	WAT	ER	CASING	STABILIZATION TIME	
CASI	NG	SI	ZE:			OTHER:									
P	C	В		···	SAMPLE				·	<u> </u>		R			
E P T H	SNG	0	No.	PEN./ REC	DEPTH (Ft.)	BLOWS /12"						N X	STRA	ATUM DESCRIPTION	
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GF Blo	KANI SWS	UL/ /F1	AR SOI	LS	Blows	OHESIVE SOILS s/Ft Density	REMARKS:	Tide +7.5	' at 1315 h	ours. 1315 hou	ırs.				
1	- 4 - 10 0 - 10 50	30 50	M	LOOSE LOOSE DENSE DENSE DENSE	2- 4 4- 8 8-15	M. STIFF STIFF O V. STIFF	4.	Depth of wate Weight of Rod Bouncing refu BE LOCATION: 87	sal encounte	ered at	43.5				
NOTE	s:		1)	STRATIF	ICATION LI	NES REPRESENT AI INGS HAVE BEEN M OTHER FACTORS T	PPROXIMATE BO	UNDARY BETWEEN	SOIL TYPES	TRANS	ITION	SM	AY BE GR	ADUAL.	
GZ:	A		د)	MAY OCCI	UR DUE TO	OTHER FACTORS T	HAN THOSE PRE	SENT AT THE TI	ME MEASUREM	ients Wei	RE MA	DE	J OF GRE	PROBE NO. 25	_

	(A			TNUT ST., BR of GZA GeoEr	, INC. ROCKTON, MA 02 nvironmental,	401 Inc.)	PRO AREA PORTSMOUTH PORTSMOU	JECT A #3 H HARBOR, JYH, NH		PROBE NO. 25 SHEET 2 OF 2 FILE No. 14TOO.2 CHKD. BY
Omp	C B A L S O W G S		T	SAMPLE	ı				REMKS	STRATUM DESCRIPTION
H	G S	No.	PEN./ REC.	OEPTH (Ft.)	BLOWS/12"				K S	
35										
رر						}				WATER
}									2	37′
					WOR					5/*
ĺ					WOR				3	SOIL
40				39.5-40.5	11					
				40.5-41.5						
		<u> </u>		41.5-42.5						
		ļ		42.5-43.5	142-50/0"					
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754	REMA	RKS:								
GZ2	<b>A</b>									PROBE NO25

		1215	J. CHES	RILLII	BROC	INC. EXTON, MA 024 RONMENTAL, IN	01 C.)	-	PORTSMOL	ROJECT REA #3 ITH HARBOR OUTH, NH				PROBE SHEET FILE CHKD.	1 0F2 No. 14100.2
CLAS	MAN:	ED BY		c.	LEND	ING		-	BORING LO		VATTON		CORP	S OF ENG	
PROB	E:	UNI	LESS OT			PROBING ACC	OMPLISHED	JSING						READI	NGS
		NW	RODS, I	ORIVEN WI	ITH 30	00 #WT FALLIN	G 24 INCHE	s.		DATE	TIME	WA	TER	CASING	STABILIZATION TIME
														-	
CASI	NG S	IZE:	-			OTHER:	· - · · · · · · · · · · · · · · · · · ·								
D E P T	C B A L S O			SAMPL	E								REM	STRA	ATUM DESCRIPTION
T H	N W		PEN./ REC	DEPTH (Ft.)	В	LOWS /12"							K	•	
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GR	ANUL	AR SOI	LS	<u>Г.</u> .	COHES	SIVE SOILS	REMARK		.3.5.	00/0 5			1		
		t Dens				Density		. Tide . Depth	+2.5' of water	at 0940 h 38.7' at	0940 hou	ırs.			
4	- 4 -10		LOOSE	2-	4	V. SOFT SOFT	3.	. Probe	e terminat	ed at requ	ired dep	oth.		,	
3	0-30 0-50		. DENSE	8-1	15	M. STIFF	PR	OBE LOC	ATION: 8	7948.3465(	N) 3493	33.9	9818(	E)	
	50		. DENSE	> 3		V. STIFF HARD									
NOTE	s:	1)	STRATIF WATER L MAY OCC	ICATION EVEL REAL	LINES DINGS O OTH	REPRESENT AF HAVE BEEN MA ER FACTORS TH	PROXIMATE DE AT TIME IAN THOSE P	BOUNDAR S AND U RESENT	Y BETWEEN NDER CONDI AT THE TIM	SOIL TYPE: ITIONS STATE MEASURE	S, TRANS TED, FLUI MENTS WEI	ITIC CTUA RE M	NS MATIONS	AY BE GR	ADUAL. JUNDWATER

PROBE NO. 27

		_		RILLING			PR ARI	OJECT A #3		PROBE NO. 27 SHEET 2 OF 2
	_		diary	NUT ST., BR of GZA GeoEr	OCKTON, MA 02 vironmental,	401 Inc.)	PORTSMOUT PORTSMO	A #3 IN HARBOR, DUTH, NH		PROBE NO. 27 SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY
DEPTH	CASWS		r	SAMPLE					REMK	STRATUM DESCRIPTION
T H	N W G S	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"				K S	
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									2	38.7′
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	<b></b>			39.5-40.5 40.5-41.5						
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		(,	1215 4	. CHEST	NUT ST., E	BROCKTON, MA 02	401 NC.)		AT PORTSMOU	ROJECT REA #3 JTH HARBOR HOUTH, NH				PROBE SHEET FILE CHKD.	1 OF 2 No. 14100.2
FORE CLAS INSF	SSI	AN:	ED BY:		c. ı	ENLING SACKETT			BORING L GROUND S DATE STA	OCATION URFACE ELEV RT 4/1/91	ATION _		CORP	S OF ENG	INEERS WATER SURFACE
PROS	3E :	:	UNI	ESS OTH	ERWISE NO	TED PROBING AC	COMPLISHED	USING			GRO	MDN	WATER	READI	NGS
			NW	KOUS, D	KINEN MIII	H 300 #WT FALLI	NG 24 INCHE	5.		DATE	TIME	WA	TER	CASING	STABILIZATION TIME
CASI	NG	<b>s</b>	IZE:			OTHER:									
DEPT	A	8 L 0			SAMPLE								XBEX	STRA	ATUM DESCRIPTION
	N	W S	No.	PEN./ REC	DEPTH (Ft.)	BLOWS /12"						İ	K		
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			Dens			/Ft Density		. Tide Dept	+1.9′ of_water	at 0920 ho	ours. 20 Hour	s.			
4	- 4 - 1	0		LOOSE	2- 4 4- 8	V. SOFT SOFT	3 4	. Weigh	nt of rods e terminat	to 37' dec ed at requi	red dep	oth.			
3		30 50		DENSE DENSE DENSE	8-15 15-3	M. STIFF STIFF V. STIFF	PF	ROBE LOC	ATION: 8	7939.0043(N	3492	64.2	2673(	E)	
	<u> </u>	,			> 30	HARD								* -	
NOTE	\$:	:	1) :	TRATIF	CATION LI	NES REPRESENT A NGS HAVE BEEN M OTHER FACTORS T	PPROXIMATE	BOUNDAR S AND II	Y BETWEEN	SOIL TYPES	, TRANS	ITIO	NS M	AY BE GR	ADUAL. UNDWATER
GZZ	A		-/	AY OCCL	R DUE TO	OTHER FACTORS T	HAN THOSE P	RESENT	AT THE TIP	MEASUREM	ENTS WE	RE M	ADE		PROBE NO. 29A

	/۸			RILLING	ROCKTON, MA 02 nvironmental,	401 100 )	PROJECT AREA #3 PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO. 29A SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY
D E			urary (	SAMPLE	ny i o mercat,	1110.7	PORTSHOOTH, INI	ξ E	
DEPTH	C B L S W S G S	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"			SMWKS	STRATUM DESCRIPTION
									WATER
35					WOR			2	34.5′
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	(			RILLING TNUT ST., B GZA GeoEN	ROCKTON, MA 024 VIRONMENTAL, IN	01 C.)		ĀĀ CSMOL	ROJECT REA #3 ITH HARBOR HOUTH, NH				PROBE SHEET FILE CHKD.	1 OF 2 No. 14100.2
CLA	EMAN: SSIFI PECTO	ED BY:	_		ENLING ACKETT		GROU	ND SI	OCATION URFACE ELEV RT 4/2/91	ATTON	USA DATE		S OF ENG DATUM:	SINEERS WATER SURFACE /2/91
PRO	8E:	UNI	ESS OT	HERWISE NOT	ED. PROBING ACC	OMPLISHED U							READI	NGS
		NW	RODS,	RIVEN WITH	ED, PROBING ACC 300 #WT FALLIN	G 24 INCHES	•		DATE	TIME	T	TER	CASING	·
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CAS	ING S	IZE:		<del>-</del>	OTHER:						Щ,			
P	C B			SAMPLE	-							R		
DEPT	A L S O N W				<del></del>							E	STRA	ATUM DESCRIPTION
H	G S	No.	PEN./	DEPTH (Ft.)	BLOWS /12"							K S		
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					WOR/6"							2	31.5′ -	
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		AR SOI t Dens			HESIVE SOILS Ft Density	REMARKS	Tide at +2	.2'	74.5					
	- 4	٧.	LOOSE	< 2 2- 4	V. SOFT	2.	Depth of w	ater			_		_	
4	-10 10-30		LOOSE	4-8	SOFT M. STIFF	3.	Bouncing r	efus	al encounte	ered at	39.1	′, 6	0/1".	
1 3	30-50		DENSE	8-15	STIFF	PRO	DE LOCATION	: 87	7933.0214(N	3491	86.8	196(	E)	
	50	٧.	. DENSE	15-30 > 30	V. STIFF HARD									
NOTI	ES:	1) :	STRATIFI	CATION LIN	ES REPRESENT AP IGS HAVE BEEN MA OTHER FACTORS TH	PROXIMATE B	OUNDARY BETH	EEN	SOIL TYPES	, TRANS	ITIO	M SM	AY BE GR	ADUAL. UNDWATER
GZ	A		MY OCC	JR DUE TO C	THER FACTORS TH	IAN THOSE PR	ESENT AT THE	E TIM	E MEASUREM	ENTS WE	RE M/	ADE		PROBE NO. 30

STRATUM DESCRIPTION   Fee   STRATUM DESCRIPTION   STRATUM DESCRI		(A	_		RILLING TNUT ST., BE of GZA GeoE	, INC. ROCKTON, MA 02 nvironmental,	401 Inc.)	PROJECT AREA #3 PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO. 30 SHEET 2 OF 2 FILE No. 14100.2 CHKD. BY
35 10 10 14 27 27 30 11 39.17	DEPT	C B A L S O		DEN /	_	1			Q III M	
35 27 35 14 35 17 35 11 35 1.1	H	GS	No.	REC.	(Ft.)	BLOWS/12"			S	
33 27 25 301L 301L 301L 301L 301L 301L 301L 301L						10				
27 28 39.17 8EFUSAL  39.17 8EFUSAL  70 60 60 65 70 70 70 70 70 70 70 70 70 70 70 70 70	75					14				
51 70 39.1' REPUSAL  45 50 50 50 50 50 50 50 50 50 50 50 50 50	رر					27				'
50						23				SOIL
45						51				
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	GZZ									PROBE NO. 30

	(	-		RILLING TNUT ST., BR F GZA GeOENV	, INC. ROCKTON, MA 02/ VIRONMENTAL, [	401 NC.)	AT PORTSMOL	ROJECT REA #3 ITH HARBOR HOUTH, NH		REPO	SHEET	ORING No. 8-31A 1 OF 2 No. 14100.2 BY JEH	
CLAS	MAN: SIFI ECTO	ED BY	:		LENLING D. PORTER D. PORTER		BORING L GROUND S DATE STA	OCATION AS URFACE ELEV RT 4/8/	ATION	CORPS TE END	DATUM:	WATER SURFACE	
SAMF	PLER:	UNI	LESS OF	HERWISE NOTE	D. SAMPLER CO	NSISTS OF A	2" SPLIT		GROUN	DWATER	R READII	NGS	
:AS	NG:				D, CASING DRI			DATE	TIME	WATER	CASING	STABILIZATION TI	ME
		HAI	MER FA	LLING 24 In.		TEN DOTING A	300 (8.						
ASI	NG S	IZE:	3" (NW	)	OTHER:								
Ε	C B A L S O		_	SAMPLE			SAMPLE DESCRIPT	ION		REM	STRA	TUM DESCRIPTION	
T	N W		PEN./ REC	DEPTH (Ft.)	BLOWS/6"	BL	IRMISTER CLASSIFI	CATION		K			ļ
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		S-1	24/3	2716-2916	1	Very loose	, gray, fine to m s, little Silt	nedium SAND,	,	2	27.6	<del></del>	
					2-2		•	medium CAND	and			SAND,	
30		s-2	24/10	29'6-31'6	4-2	SHELLS, li	, gray, fine to m ttle Silt, change to medium SAND,	at 31,1' to		1 1		Silt, Shells	
-					2-3	trace Grav	el - TILL	June Sili,		3	71 11		
		s-3	24/12	31/6-33/6	5-5	Medium den	se, gray, fine to	coarse SAM	ID,	,	31.1′ –	T111	
		S-3A			5-6	some sitt,	little Gravel -					TILL	
GR	ANUL	AR SOI	ĻS		ESIVE SOILS	REMARKS	<b>:</b>			<u></u>			
		t Dens			t Density	-	1. Tide +2.	1 on tide b	oard at 1	100 ho	urs.		İ
4.	10		LOOSE	2- 4	V. SOFT		<ol> <li>Bottom plunk</li> <li>S-3 is a doul</li> </ol>	ole jarred:	sample.				
30	)-30 )-50		DENSE	4- 8 8-15	M. STIFF STIFF		4. Boring termin		•	•			ļ
>	50	٧.	DENSE	15-30 > 30	V. STIFF HARD		BORING LOCATION:	87935.7310	J(N) 349	112.70	71(E)		
OTE	s:	1) :	TRATIF	ICATION LINE	S REPRESENT A	PROXIMATE I	SOUNDARY BETWEEN S AND UNDER CONDI	SOIL TYPES,	TRANSITI	ONS MA	Y BE GRA	NOUAL.	$\neg$
		2) (	ATER LI	EVEL READING JR DUE TO OT	IS HAVE BEEN M/ HER FACTORS TI	WE AT TIME! HAN THOSE PI	S AND UNDER CONDI RESENT AT THE TIM	TIONS STATÉ E MEASUREME	D, FLUCTU NTS WERE	IATIONS MADE	OF GROU		
<b>3</b> 21	3											BORING No.B-31A	<u>.                                    </u>

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		_		RILLING			PROJECT AREA 33	REPO	ORT OF BORING NO. B-31A SHEET 2 OF 2 FILE NO. 14100.2
			idiary	of GZA GeoEn	OCKTON, MA 02 vironmental,	Inc.)	PORTSMOUTH HARBOR PORTSMOUTH, NH		CHKD. BY JEH
DEPT	CASWS			SAMPLE			SAMPLE DESCRIPTION	R E M	STRATUM DESCRIPTION
Ħ	N W G S	No.	PEN./ REC.	DEPTH (Ft.)	8LOWS/6"		BURMISTER CLASSIFICATION	K S	
		S-4	24/18	33.6-35.6	11-8	Medium der	nse, gray, fine to coarse SAND, , little Gravel - TILL		
35					9-12	Some Sitt	, tittle Gravet - TILL		
رر		S-5	24/8	35.6-37.6	14-10	Medium der	nse, gray, fine to coarse SAND, LT, trace Gravel - TILL		
					12-20		il, crade di avec		TILL
	<u></u>	S-6	24/6	37.6-39.6	11-12	Medium der	nse, gray, fine to coarse SAND, lt, trace Gravel - TILL		
	<u> </u>				9-10	1			
40	<u> </u>	S-7	24/10	39.6-41.6	19-15	Medium der little Si	nse, gray, fine to coarse SAND, lt, trace Gravel - TILL		
	<u> </u>				14-18	!			
	<u> </u>	S-8	24/6	41.6-43.6	21-19	Dense, gra	ay, fine to medium SAND, some ce Gravel - TILL		
	<u> </u>	<u> </u>		<del></del>	18-20	-			/7 /
		<u> </u>			19		•	4	BOTTOM OF PROBE
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	REMA	RKS:							

BORING No.B-31A

	(/	1215	. CHEST	NUT S1	T., BR	, INC	C. MA 024 ITAL, IN	01 C.)		PORTSM							PROBE SHEET FILE CHKD.	No14	1 OF 100.2 JEH	32 2
CLAS	MAN: SIFII ECTO	ED BY:	· =		-	NLING CKETT				BORING GROUND DATE ST	SURI	TION FACE ELE 4/2/91	VATIC	M.	SA CO		S OF ENG DATUM: 4/	INEERS WATER SU 2/91	<u>JRFA</u> CE	: 
PROB	E:	UNI	ESS OT	HERWISE	ENOTE	D PROS	BING ACC	OMPLISHED OF STREET	USING		L		,	GROL	JNDWA	TER	READI	NGS	·	
1				, KI VE	*****	300 mm	/		••		L	DATE	TI	4E	WATE	ER	CASING	STABILI	ZATIO	N TIME
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CASI	NG S	IZE:					OTHER:													
D E P	BLOW		PEN./	SAM												XXXX	STRA	TUM DESC	RIPTI	ION
H	ĞŜ	No.	REC	(Ft		BLOWS .	/12"									ŝ				
10 15																1	O'	WATER		
	RANUL/	AR SOIL			COH	HESIVE FT Dens	SOILS	REMARK 1	. Tide	+3.	.6′					•				
0- 4 1	- 4 - 10 0-30 0-50 50	M V	LOOSE LOOSE DENSE DENSE	24	< 2 - 4 - 8 8-15 15-30	v. M. v.	SOFT SOFT STIFF STIFF STIFF HARD	2 3 PI	. Depti . Bourn ROBE LOC	n of wate	er 3: usal 879:	encoun 56.0904(	(N) :	34908	34.54	24(	E)			
NOTE	S:	1)	STRATIF	ICATIO	N LINE	ES REPR	ESENT AF	PPROXIMATE	BOUNDAR	Y BETWEE	N SC	ONS STA	S, TR	FILIC	TIONS	S M	AY BE GR	ADUAL.	<b>?</b>	
000	<b>7</b>	د)	MAY OCC	UR DUÊ	TO	THER FA	CTORS TI	ADE AT TIME	RESENT	AT THE T	IME	MEASURE	MENTS	WER	E MAC	DÉ	unu	PROBE	NO.	32
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				RILLING	, INC. ROCKTON, MA 02-	401	PROJECT AREA #3 PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO. 32 SHEET 2 OF 2 FILE No. 14100.2 CHKD. BY
D			diary o	of GZA GeoEr	nvironmental,	Inc.)	PORTSMOUTH, NH	R	CHKD. BY
DEPTH	CASNG	· ·	DEN /	SAMPLE	<u> </u>			R E M K S	STRATUM DESCRIPTION
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G7.1	<b>A</b>								PROBE NO. 32

	,1 (A	1215	L CHEST	TO THE	G, INC. BROCKTON, MA 02 NVIRONMENTAL, I	401 NC.)		AT <u>Port</u> smou	ROJECT REA #3 JTH HARBOR HOUTH, NH				PROBE SHEET FILE CHKD.	1 OF Z No. 14100.2
FOREM/ CLASS: INSPEC	IFIE				LENLING SACKETT			BORING L GROUND S DATE STA	OCATION URFACE ELE RT <u>4/2/91</u>	VATION	USA C		S OF ENC	INEERS UM WATER SURFAC 12/91
PROBE:	:	UNI	ESS OTH	ERWISE NO	TED, PROBING AC	COMPLISHED U	SING			GRO	OUNDWA	ATER	READI	NGS
		,	,						DATE	TIME	WAT	ER	CASING	STABILIZATION TIME
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CASING		ZE:			OTHER:				L	<u></u>	<u> </u>	_	ļ 	
EA	B			SAMPLE								R E	CTD/	TIM DECCRIPTION
T N H G	S	No.	PEN./ REC	DEPTH (Ft.)	BLOWS /12"	,					i	K	3187	ATUM DESCRIPTION
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		Dens			Ft Density	1 1.	Tide	+4.64 of water	, 35.5 <i>/</i>					
0- 4 4-10	0		LOOSE	< 2 2- 4	V. SOFT	1	•		ed at requ	ired den	oth.			
10- 30- > 50	30 50		DENSE DENSE DENSE	4- 8 8-15 15-3 > 30	M. STIFF STIFF	1			7952.1339(1			039	1238(E	
TES:		1) \$	TRATIFI		NES REPRESENT AI NGS HAVE BEEN M OTHER FACTORS TO	PPROXIMATE BO	OUNDARY	BETWEEN	SOIL TYPES	TRANSI	ITIONS	S MA	Y BE GR	ADUAL. UNDWATER
ZA		M	AY OCCU	R DUE TO	OTHER FACTORS T	HAN THOSE PR	ESENT /	T THE TIM	IE MEASUREN	ients wei	RE MAD	Ē	wnw	PROBE NO. 33

	(A				ROCKTON, MA 02 nvironmental,	2401 Inc.)	PROJECT AREA #3 PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO. 33 SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY
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D E P T	C A C W	$\vdash$	DEN /	SAMPLE DEPTH	1	1		REMKS	STRATUM DESCRIPTION
H	ĞŜ	No.	PEN./ REC.	(Ft.)	BLOWS/12"			S	
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	REMAR	RKS:							
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GZZ	1								PROBE NO. 33

		_			ROCKTON, MA 020 IVIRONMENTAL, I	401 NC.)		AT PORTSMOU	ROJECT REA #3 ITH HARBOR HOUTH, NH				PROBE SHEET FILE CHKD.	1 OF 2 No. 14100.2
CLA	EMAN SSIF PECT	TED BY	: Ξ		ENLING PORTER		(	BORING LO GROUND SI DATE STAI	OCATION URFACE ELE RT 4/3/91	AS PER VATION _	USA CO		DAT	
PRO	8E :	UN	LESS OT	HERWISE NOT	TED, PROBING AC	COMPLISHED (	JSING			GRO	MUDWA.	TER	READI	NGS
		Nie	ROOS, I	DRIVEN WITH	1 300 #WT FALLI	NG 24 INCHES	5.		DATE	TIME	WATE	R	CASING	STABILIZATION TIME
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CAS	ING	SIZE:			OTHER:							╗		
D E P	CEAL	T		SAMPLE						I.		:		
T H	S C N V G S	<i>i</i> I	PEN./ REC	DEPTH (Ft.)	BLOWS /12"						M K S		STRA	TUM DESCRIPTION
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Blo	IUNAS I\ew	AR SO	LS	Blows/	HESIVE SOILS Ft Density	REMARKS	Tide	+6.1	74.46					
0	- 4	٧	LOOSE	< 2 2- 4	V. SOFT	2: 3:	Probe t	of water terminate	34.47 ed at requ	ired dep	th.			
1 1	-10 0-30	М	LOOSE DENSE	4-8	SOFT M. STIFF	PRO	OBE LOCAT	ION: 87	945.4833()	N)	34	489	86.7713	(E)
	0-50 50		DENSE DENSE	8-15 15-30										
NA=-	· · ·	4.		> 30	HARD	20004:44== =	NOTING A SHE	AF4: =	2011 2022			,,,,	v ne	ADUAL .
NOTE	:5:	2)	JATER LE	VEL READIN	IES REPRESENT AF IGS HAVE BEEN M/ ITHER FACTORS TI	ADE AT TIMES	SUUNDARY	ER CONDI	SUL TYPES	ED, FLUC	TUATIONS	MA' SNC	OF GROU	DUAL. JNDWATER
<b>GZ</b> :	A		HAT UCCL	א טטצ וט ט	HER PACIONS T	HAR INUSE PR	CESENI AT	INE TIM	E MEASUREM	IENIS WER	E MADE			PROBE NO. 34

	(A	1215 V Subs		RILLING THUT ST., B of GZA GeoE	ROCKTON, MA 02 invironmental,	401 Inc.)	PROJECT AREA #3 PORTSMOUTH HA PORTSMOUTH,	RBOR,		PROBE NO. 34 SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY
DEPTH	C B L S O W G S			SAMPLE					REMKS	STRATUM DESCRIPTION
H	N W G S	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"				K	STATION DESCRIPTION
										WATER
35					WOR				2	34.4'
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		1215	. CHEST	NUT ST B	ROCKTON, MA 024	101		AR PORTSMOU	OJECT EA #3 TH HARBOR				PROBE SHEET FILE	1 OF Z No. 14100.2
FORE	MAN				VIRONMENTAL, II ENLING	IC.)		BORING LO	JRFACE ELEV	VATTON			CHKD. S OF ENG DATUM:	
┝──	PECT				ORTER	<del></del>		DATE STA	RT <u>4/3/91</u>		DATE		4/	3/91
PROS	BE:	UN: NW	LESS OTH RODS, D	ERWISE NOT PRIVEN WITH	ED, PROBING ACI 1 300 #WT FALLII	COMPLISHED ON THE COMPLISHED OF COMPLISHED O	USING S.		DATE	TIME	WATI		CASING	STABILIZATION TIME
CASI	NG S	SIZE:			OTHER:									
D E P	C B A L S O			SAMPLE		· · · · · · · · · · · · · · · · · · ·					- 1	R E		
	S O N W G S	4	PEN./ REC	DEPTH (Ft.)	BLOWS /12"						- 1	H K S	STRA	ATUM DESCRIPTION
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CP.	A 111 12	AR SOI			HESIVE SOILS	REMARK		<u></u>			[_			
Blo	WS/F	t Dens	ity	Blows	/Ft Density	1 2	Tide Depth	of water	at 1740 h	1740 Hou	ırs			
4 1 3	- 4 - 10 0- 30 0- 50 50	M	LOOSE LOOSE DENSE DENSE DENSE	< 2 2- 4 4- 8 8-15 15-30 > 30	V. SOFT SOFT H. STIFF STIFF V. STIFF HARD	3. • PR			ed at requi	•		66(1	E)	
NOTE	s:	1)	STRATIFI	CATION LIN	IES REPRESENT AI IGS HAVE BEEN MA OTHER FACTORS T	PPROXIMATE ADE AT TIME	BOUNDAR S AND U	Y BETWEEN	SOIL TYPES	TRANS	TIONS	S MA	AY BE GR	ADUAL. UNDWATER
GZZ	A	١	MAY OCCU	IR DUE TO C	THER FACTORS T	HAN THOSE P	RESENT	AT THE TIM	IE MEASUREM	IENTS WE	RE MAD	Œ		PROBE NO. 35

				RILLING		/ O.1	PROJECT AREA #3 PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO. 35 SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY
_			idiary	of GZA GeoE	ROCKTON, MA 02 nvironmental,	Inc.)	PORTSMOUTH HARBOR, PORTSMOUTH, NH	<u> </u>	FILE No. 14100.2
D E P T H	C A L O W S		·	SAMPLE				REMKS	STRATUM DESCRIPTION
H	N W G S	No.	PEN./ REC.	DEPTH (Ft <sub>-</sub> )	BLOWS/12"			K	STRATUM DESCRIPTION
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35		-							WATER
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	(	1215	J. CHEST	NUT ST.,	BROCKTON, MA 02 ENVIRONMENTAL, 1	2401 NC.)		A PORTSMO	ROJECT REA #3 UTH HARBOR MOUTH, NH				PROBE SHEET FILE CHKD.	1 OF 2
CLA	EMAN: SSIFI PECTO	ED BY	: _		LENLING PORTER			BORING L GROUND S	OCATION SURFACE ELEVIER 4/3/91	VATION	USA C		S OF ENG	
PRO			LESS OT			COMPLISHED	USING		- <del>7,3,7,1</del>				READI	
		ЖW	ROOS,	RIVEN WI	OTED, PROBING ACT TH 300 #WT FALL	NG 24 INCHE	s.		DATE	TIME	1	_		STABILIZATION TIME
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		AR SOI t Dens			COHESIVE SOILS s/ft Density	REMARK	Tide	+6.5	,					
	- 4	V	LOOSE	< 2	V. SOFT		. Depth	n of water e terminat	· 35.3′ :ed at requ	ired dep	oth.			
1	-10 0-30		LOOSE DENSE	4- 8	M. STIFF									
	0-50 50		DENSE DENSE	15-	30 V. STIFF	PF	OBE LOC	ATION: 8	7943.8361(1	N) 3488	856.12	(170	E)	
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NOTE	:5:	2)	MATER LI	EVEL READ	INES REPRESENT / INGS HAVE BEEN ! OTHER FACTORS	APPRUXIMATÉ MADÉ AT TIME THAM THOSE S	BOUNDAR S AND U DECENT	T BETWEEN NDER COND AT THE TO	SUIL TYPES ITIONS STAT ME MEASURE	ED, FLU	CTUAT	ION:	S OF GRO	UNDWATER
GZ	A		7A   ULU	JK DUE 10	JINEK FACIORS	I TUSE P	- I NJCJ		nc meadurer	TERIO WE	KE MA	WE.		PROBE NO. 36

	(A	_		RILLING TNUT ST., BR of GZA GeoEr	, INC. ROCKTON, MA 02 Environmental,	401 (nc.)	PROJECT AREA #3 PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO. 36 SHEET 2 OF 2 FILE No. 14100.2 CHKD. BY
DEPTH	C A L O W S			SAMPLE				RE	STRATUM DESCRIPTION
T H	N W G S	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"			REMKS	STRATOR DESCRIPTION
		[							WATER
35								2	35,3′
				35.3-36.5					
				36.5-37.5	WOR				
				37.5-38.5	7				
40				38.5-39.5	12				
				39.5-40.5	18				SOIL
				40.5-41.5	30 58				
				42.5-43.5	100				
				43.5-44.5	90				·
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	Ç.				ROCKTON, MA 024 VIRONMENTAL, IN	01	ĀRE PORTSMOUT	DJECT A #3 H HARBOR UTH, NH			SHEE	No. <u>14100.2</u>
CLA	EMAN: SSIFI PECTO	ED BY:			ENLING ORTER		BORING LOC GROUND SUF DATE START	RFACE ELEV	ATION	USA COR		GINEERS WATER SURFACE /3/91
PRO	BE:	UNI NW	ESS OTH	HERWISE NOT DRIVEN WITH	ED, PROBING ACC 300 #WT FALLIN	OMPLISHED USING G 24 INCHES.	_		GRO	UNDWAT	R READ	
			•					DATE	TIME	WATER	CASING	STABILIZATION TIME
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E P	LON W		PEN./	SAMPLE DEPTH						Ë	STR	ATUM DESCRIPTION
Н	G S	No.	REC	(Ft.)	BLOWS /12"					s	<u> </u>	
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GR 8lo	ANULA ws/Ft	R SOI	LS i ty		HESIVE SOILS Ft Density	REMARKS:	+6.2′_					
0,-	4	٧.	LOOSE	2 × 2	V. SOFT	Z. Depti 3. Boun	h of water 3 cing Refusal	2.2' at 45.5'				
11 31	-10 0-30 0-50 50		LOOSE DENSE DENSE DENSE	2- 4 4- 8 8-15 15-30 > 30	SOFT M. STIFF STIFF V. STIFF HARD	PROSE LO	CATION: 879	41.4451(N)	)	34883	2.9393(E	
OTE	s:	1) S	TRATIFI	CATION LIN	ES REPRESENT APP	PROXIMATE BOUNDAR	Y BETWEEN SO	OIL TYPES,	TRANSI	TIONS M	AY BE GR	ADUAL.
GZ1	4	<) W	AY OCCU	R DUE TO O	THER FACTORS TH	AN THOSE PRESENT	AT THE TIME	MEASUREME	NTS WER	E MADE	is up GRO	PROSE NO. 37
		1) S 2) W	TRATIFI ATER LE AY OCCU	CATION LIN VEL READIN IR DUE TO O	ES REPRESENT APP GS HAVE BEEN MAD THER FACTORS THA	PROXIMATE BOUNDAR DE AT TIMES AND U AN THOSE PRESENT	RY BETWEEN SO UNDER CONDITI AT THE TIME	DIL TYPES, IONS STATE MEASUREME	TRANSI D, FLUC NTS WER	TIONS METUATION	IAY BE GR IS OF GRO	ADUAL. UNDWATER PROBE NO. 37

		1215 Subs		RILLING TNUT ST., B of GZA Geoe	ROCKTON, MA 02 nvironmental,	2401 Inc.)	PROJI AREA PORTSMOUTH PORTSMOUT	ECT #3 HARBOR, H, NH		PROBE NO. 37 SHEET 2 OF 2 FILE No. 14100.2 CHKD. BY
DEPTH	CASWS		PEN./ REC.	SAMPLE DEPTH (Ft.)					REMKS	STRATUM DESCRIPTION
	6.5	No.	REC.	(Ft.)	BLOWS/12"				S	
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		121 (A 0		CHEST	UT ST., B	ROCKTON, MA 024 VIRONMENTAL, IN	(01 (C.)		ĀR PORTSMOU	ROJECT REA #3 ITH HARBOR WOUTH, NH				PROBE SHEET FILE CHKD.		
	SSI	N: FIED TOR:	BY:	_		ENLING ORTER				OCATION URFACE ELEV RT 4/3/91	VATION	USA C		S OF ENG DATUM: 4/	INEERS WATER SURFACE 3/91	
PRO	BE:		UNLES	SOTH	ERWISE NOT	ED, PROBING ACT	OMPLISHED U	SING			GRO	MONUC	ATER	READI	IGS	
			NW KU	ט , טו	KIVEN WITH	SOU PHI FALLI	IG 24 INCHES	· .		DATE	TIME	WAT	ER	CASING	STABILIZATION TIME	_
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CAS	NG	SIZE	:			OTHER:										_
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T	SNG	W I		N./ REC	DEPTH (ft.)	BLOWS /12"						- 1	M K S	STRA	TUM DESCRIPTION	
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0-	4		V. Li	OOSE		V. SOFT	7 2.	Depth Bounci	of water	29.2' l at 45'						
- 10	·10 )-3(	)	M. DI		2- 4 4- 8	SOFT M. STIFF	i		_	940.8547(N	34877	8.262	28(E	:)		
30	)-50 50	)		ENSE	8-15 15-30	STIFF V. STIFF			5,		. = <del>-</del> ··		- • •	-		
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IOTE	5:	2)	STRA	R LEV	ATION LINE	S REPRESENT AP S HAVE BEEN MA THER FACTORS TH	PROXIMATE B	OUNDARY AND UN	BETWEEN S	SOIL TYPES	TRANSI	TIONS	MA ONS	Y BE GRA OF GROU	DUAL. Indwater	
3Z <i>1</i>	1		MAY	UCCUR	10 01 JUL	INER FACTORS TH	AN THOSE PR	ESENT A	I THE TIME	E MEASUREM	ENTS WER	E MAD	DE		PROBE NO38	_

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		_		RILLING	ROCKTON, MA 02 nvironmental,	2401	PROJE: AREA A PORTSMOUTH H PORTSMOUTH	CT F3  ARBOR,		PROBE NO. 38 SHEET 2 OF 2 FILE NO. 14100.2 CHKD. BY
D			diary		nvironmental,	inc.)	PORTSMOUTH	, NH	R	CHKD. BY
DEPTH	CASNG	<u> </u>	DEN /	SAMPLE	Γ	-			REMKS	STRATUM DESCRIPTION
<u> </u>	ĞŜ	No.	PEN./ REC.	DEPTH (Ft.)	BLOWS/12"			· · · · · · · · · · · · · · · · · · ·	ŝ	
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		_			BROCKTON, MA 024	401		AF	ROJECT REA #3 ITH HARBOR				PROBE	1 0 2	
500	EMAN	(A DIV	ISION	F GZA GeoEl	NVIRONMENTAL, II	NC.)	_=	PORTSM	HIV. HTUO	46 0FD	1164	5000	FILE CHKD.	BY <u>JEH</u>	
CLA		IED BY	: <u> </u>		PORTER			BORING LI GROUND SI DATE STAI	URFACE ELEV RT 4/3/91	ATION	DATE		S OF ENC		
PRO	BE:	UN NW	LESS OF	HERWISE NO	TED, PROBING ACH	COMPLISHED UNG 24 INCHES	SING			GRO	HONDO	ATER	READI		
									DATE	TIME	WAT	TER	CASING	STABILIZATION T	IME
CAS	ING :	SIZE:			OTHER:					-					—
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PTH	CASHS	No.	PEN./ REC	DEPTH (Ft.)	BLOWS /12"							E M K	STRA	ATUM DESCRIPTION	
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GR Blo	RANUL SWS/F	AR SOI	LS		OHESIVE SOILS /Ft Density	REMARKS	Tide	+4.51							
O.	- 4		LOOSE	< 2	V. SOFT	3:	Deoth (	of water	32' al encounte	red at :	38′,	50/	0".		
1 3	-10 0-30 30-50 50		LOOSE DENSE DENSE DENSE	2- 4 4- 8 8-15 15-30 > 30	SOFT M. STIFF STIFF V. STIFF HARD	PRO	DBE LOCAT	rion: 87	935.9490(N	) 	348	8727	.7853(E)		
NOTE	s:	1) :	STRATIF	CATION LIP	NES REPRESENT AF NGS HAVE BEEN MA OTHER FACTORS TH	PPROXIMATE B	OUNDARY AND UND	BETWEEN ER CONDI	SOIL TYPES	TRANSI	TION	S MA	Y BE GR	ADUAL. UNDWATER	
GZ	A	Í	AY OCCI	JR DUE TO	OTHER FACTORS TH	HAN THOSE PR	ESENT AT	THE TIM	E MEASUREME	NTS WER	RE MAI	DE		PROBE NO. 39	

	(A	_		RILLING THUT ST., BE of GZA GeoE	ROCKTON, MA 02 nvironmental,	401 Inc.)	PROJECT AREA #3  PORTSMOUTH HARBOR, PORTSMOUTH, NH		PROBE NO. 39 SHEET 2 OF 2 FILE No. 14TDO.2 CHKD. BY
DEPTH	C A L O L S		PEN./ REC.	SAMPLE DEPTH (Ft.)				R E M K	STRATUM DESCRIPTION
Н	GS	No.	REC.	(Ft.)	BLOWS/12"		·	S	
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	(.	1215 W	. CHEST	RILLING NUT ST., BI GZA GeoEN	, INC. ROCKTON, MA 024 VIRONMENTAL, IN	01 C.)	-	PORTSMOL	ROJECT REA #3 ITH HARBOR WOUTH, NH				PROBE SHEET FILE CHKD.	1 OF T No14100.2
CLAS	EMAN: SSIFI PECTO	ED BY:	_		ENLING ORTER			BORING LI		VATION _	USA (		S OF ENG	
PROE	BE:	UNL	ESS OT		ED, PROBING ACC	OMPLISHED U	<u></u>				OUNDW			
		NW	RODS, D	RIVEN WITH	300 #WT FALLIN	G 24 INCHES	s.		DATE	TIME	<del></del>	TER	CASING	
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CASI	ING S	175.			OTHER:					+	┼-			
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D E P	C B		٠	SAMPLE				,				RE		
T	SONW	No.	PEN./ REC	DEPTH (Ft.)	8LOWS /12*							M K S	STRA	ATUM DESCRIPTION
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	- 4		LOOSE		V. SOFT	<b>-</b>   ģ:	Depth	of water il at 32'	31' at 11	34 Hours	3			
4	- 10		LOOSE	2- 4	SOFT	1			, 3370". 7930.7415()			1027	E١	
3	10-30 30-50		DENSE DENSE	8-15	M. STIFF		ODE LUCA	IIONI O	1730.1413(1	1) 3400	, ror	,02(	_,	
	50	V.	. DENSE	15-30 > 30	V. STIFF HARD	L								
NOTE	ES:	1) 9	STRATIF	ICATION LIN	ES REPRESENT AF	PROXIMATE	BOUNDARY	BETWEEN	SOIL TYPES	TRANS	ITION	NS M	AY BE GR	ADUAL.
00	<b>7</b>	2) \	AY OCC	OR DUE TO O	ES REPRESENT AF IGS HAVE BEEN MA THER FACTORS TH	IAN THOSE P	RESENT A	T THE TIME	E MEASUREN	IENTS WE	RE MA	ADE	J OF UKU	PROSE NO. 40
GZ.	A													PROBE NO40

		(			RILLING INUT ST., B F GZA GeoEN	ROCKTON, MA 02	401 NC.)	P	AR PORTSMOU	OJECT EA #3 TH HARBOR OUTH, NH				PROBE SHEET FILE CHKD.	1 OF T No. 14100.2
FORI CLAS INSI	SS	IFI	ED BY	: <u>=</u>		ENLING ORTER		84 Gi Di	ORING LO ROUND SL ATE STAF	CATION URFACE ELEV ET 4/9/91	AS PER L	USA C	ORP END	S OF ENG DATUM: 4/	INEERS WATER SURFACE 9/91
PRO	BE	:	UN	LESS OT	HERWISE NOT	ED, PROBING AC	COMPLISHED							READI	NGS
			NW	KOOS, I	DRIVEN WITH	1 300 #WT FALLI	NG 24 INCHE	S.		DATE	TIME	WAT	ER	CASING	STABILIZATION TIME
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0.	- 4 - 1	'n	٧	LOOSE		V. SOFT	3.	Bouncing	refusa	il encounte	red at	32.2 <i>′</i>	, 2	5/0".	
1	0-	30 50	M.	DENSE DENSE	4- 8 8-15	M. STIFF STIFF	PR	OBE LOCATI	ON: 87	956.4742(N	) 34868	81.49	92(1	E)	
	50		V	. DENSE		V. STIFF									
NOTE	٠.		13	STRATIF			PPROYIMATE	ROLINDARY D	FTUFFU	SOIL TYPES	TPANCI	TION	S MA	Y RF CP	ADUAL -
<b>6</b> 77			25	JATER LE	VEL READIN	IES REPRESENT A IGS HAVE BEEN M OTHER FACTORS T	ADE AT TIME	S AND UNDERESENT AT	R CONDI	TIONS STATI	ED, FLUC	TUAT E MA	IONS DE	OF GRO	UNDWATER

	(	_		RILLING THUT ST., BI F GZA GeoEN	, INC. ROCKTON, MA 0240 VIRONMENTAL, INC	<u> </u>	AF PORTSMOU	ROJECT REA #3 ITH HARBOR HOUTH, NH				PROBE SHEET FILE CHKD.	1 OF T No. <u>14100.2</u>
CLA	EMAN: SSIFI PECTO	ED BY	: =		ENLING HAFFNER		BORING LO	OCATION URFACE ELE RT 4/5/91	AS PER	USA (		S OF ENG	SINEERS WATER SURFACE 75/91
PROI			LESS OT			OMPLISHED LISTING	DAIL SIA	<u> </u>				READ I	
		NW	ROOS,	DRIVEN WITH	ED, PROBING ACCO 300 #WT FALLING	24 INCHES.		DATE	TIME	т —	TER		STABILIZATION TIME
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E	AL			SAMPLE							E		
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CP	ANLIL	AR SOI	LS	COL	HESIVE SOILS	REMARKS:					1		
		t Dens		Blows/	Ft Density	1. Tide	+4. <sup>7</sup> of water	41 23.51					
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1	0-30 0-50	M.	. DENSE DENSE	4- 8	M. STIFF STIFF		ATION: 87						
>	50	٧.	. DENSE		V. STIFF	PROBE LOC		,JU.UE47(1	4) J400.	J, .U/	. J.J.(1	-,	
NOTE	<u> </u>	13.	CTBATIC		HARD	PROVINATE POUNCAS	V DETIFEE	COLL TYPES	TDAMES	17104	6 24	Y DE CO	ADILA
NOTE	<b></b> :	2)	WATER LI	EVEL READING	ES REPRESENT APP GS HAVE BEEN MAD THEN FACTORS TH	PROXIMATE BOUNDAR DE AT TIMES AND U AN THOSE PRESENT	NDER CONDI	TIONS STATE	ED FLUC	CTUAT	IONS	OF GRO	UNDWATER
GZZ	A	,	TAT UCC	UK DUE 10 0	INCK FACIOKS INA	W INUSE PRESER!	AL THE LIM	E HEADUKEM	ICRIS WES	KE MA	J.E		PROBE NO. 42

	(	_		RILLING TNUT ST., BI F GZA GeoEN	ROCKTON, MA 024 VIRONMENTAL, IN	(01 (C.)	PORT SMOU	ROJECT REA #3 JTH HARBOR 4OUTH, NH			PROBE SHEET FILE CHKD	1 0FT
CLA	EMAN: SSIFI PECTO	ED BY	: =		ENLING HAFFNER			OCATION URFACE ELE RT <u>4/5/91</u>	VATION	USA CORE	PS OF ENG DATUM:	INEERS WATER SURFACE /5/91
PRO	3E :	UN	LESS OT	HERWISE NOT	ED, PROBING AC	COMPLISHED USING					R READI	NGS
		NW	RODS,	DRIVEN WITH	300 #WT FALLII	NG 24 INCHES.		DATE	TIME	WATER	CASING	STABILIZATION TIME
CAS	NG S	IZE:			OTHER:				$\perp$			
D	CBAL			SAMPLE	İ					RE		
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		AR SOI t Dens		COI Blows/	HESIVE SOILS Ft Density	REMARKS:	e +5.14	'			*	
g-	4	٧.	LOOSE	< 2	V. SOFT	2. Dep	th of water			74 / .		
1	-10 0-30 0-50	M.	LOOSE DENSE DENSE	4- 8 8-15	SOFT M. STIFF STIFF	1 '	ncing refusi OCATION: 87				F)	
	50	٧.	DENSE			FRUDE	wwniivni O/		.,		-,	
NOTE	s:	1) \$	TRATIF		····	PROXIMATE BOUND	ARY BETWEEN	SOIL TYPES	TRANSI	TIONS M	AY BE GR	ADUAL.
GZZ	<b>A</b>	2) 1	IATER LI	JR DUE TO O	GS HAVE BEEN MA THER FACTORS TH	PPROXIMATE BOUND/ NDE AT TIMES AND NAN THOSE PRESENT	UNDER CONDI	TIONS STAT E MEASUREM	ED, FLUC ENTS WER	TUATION E MADE	S OF GRO	UNDWATER /3
344	7 <b>4</b>											PROBE NO. 43

	,	1215	W. CHES	TNUT ST.	BROCKTON, MA 02 ENVIRONMENTAL, 1	2401 NC.)		AR PORTSMOU	ROJECT REA #3 ITH HARBOR OUTH, NH				PROBE SHEET FILE CHKD.	1 OF Z No. 14100.2
CLA	EMAN SSIF PECT	IED BY	: _		LENLING SCHAFFNER			BORING LO GROUND SI DATE STAI	DCATION URFACE ELEV RT 4/5/91	ATION		CORP	S OF ENG	
PRO	BE:	UN	LESS OT	HERWISE NO	TED, PROBING AC	COMPLISHED	USING			GRO	NUNDI	ATER	READI	
		NW	RODS,	DRIVEN WIT	TH 300 #WT FALL	ING 24 INCHE	<b>S.</b>		DATE	TIME	WA	TER	CASING	STABILIZATION TIME
CAS:	ING S	SIZE:			OTHER:	}								
DEP	C B A L S O	.		SAMPLE								R		
H	N W		PEN./ REC	DEPTH (Ft.)	BLOWS /12"							M K S	STRA	TUM DESCRIPTION
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				31.8-32.	8 WOR									
GR	ANUL.	AR SOI	ĻŞ		OHESIVE SOILS	REMARKS				·				
		t Dens		_	Ft Density	<del> </del> 2.	Tide Depth	+5.6' of water	29.1'	<b>.</b> -	., -			
4.	4 10 1-30		LOOSE	2- 4	V. SOFT SOFT	3.		-	l encounte				777/	
30	2-30 2-50		DENSE	8-15	M. STIFF STIFF	PR	USE LOCA	11 <b>0N:</b> 87	976.5522(N	)	34	აია2	.3756(E)	
	50	۷.	DENSE	15-3 > 30	O V. STIFF HARD									
OTE	S:	1) 5	TRATIF	ICATION LI	NES REPRESENT A NGS HAVE BEEN M OTHER FACTORS T	PPROXIMATE E	BOUNDARY S AND UND	BETWEEN !	SOIL TYPES,	TRANSI	TION	S MA IONS	Y BE GRA	DUAL. INDWATER

GZA PROBE NO.

	(A			RILLING INUT ST., BR of GZA GeoEr	, INC. ROCKTON, MA 02 Environmental,	401 Inc.)	PRO ARE PORTSMOUT PORTSMO	DJECT :A #3 H HARBOR,		PROBE NO. 44 SHEET 2 OF 2 FILE No. 14TDO.2 CHKD. BY
D E P T H	C B A L S O W G S		<u></u>	SAMPLE			, 30, 101	S 11, 11	RE	
T H	N W	No.	PEN./ REC.	DEPTH (ft.)	BLOWS/12H				REMKS	STRATUM DESCRIPTION
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	REMAR	KS:								
3ZA										PROBE NO. 44

		G	_		RILLING TNUT ST., B OF GZA GeoEN	ROCKTON, MA 024 VIRONMENTAL, IN	01 C.)		AR PORTSMOU	ROJECT REA #3 ITH HARBOR WOUTH, NH				PROBE SHEET FILE CHKD.	1 OF THE No14100.2	
FOR CLA INS	SSI	FI	ED BY	: =		ENLING CHAFFNER			BORING LO GROUND SI DATE STAI	OCATION URFACE ELE RT 4/5/91	VATION	USA			INEERS WATER SURFACE	_
PRO	BE:		UN	LESS OT	HERWISE NOT	ED, PROBING ACC 300 #WT FALLIN	OMPLISHED (	JSING	7		GRO	JUNDI	JATES	READI	NGS	_
			NINE	KCUS,	DKINEM MIIH	SUU RWI FALLIN	G 24 INCHE	5.		DATE	TIME	WA.	TER	CASING	STABILIZATION TIME	_
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CAS	ING	Ş	IZE:			OTHER:		_								_
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	ANU	LA	R SOI	LS	COI	ESIVE SOILS	REMARKS	:			·	L	!			
Blo	WS/	Ft	Dens	ity	Blows/	Ft Density	1 1.	Tide	+3.5' of water	11.5'						
4	-10			LOOSE	2- 4	V. SOFT SOFT	1			11.5' il encounte						
3(	0-3 0-5	0		DENSE DENSE	8-15	M. STIFF STIFF	PRO	OBE LOCA	TION: 879	22.8179(N)	348590	3.946	4(E)	)		
_	50		٧.	DENSE	15-30 > 30	V. STIFF HARD										
NOTE	s:		1) 5	TRATIF	ICATION LINE	S REPRESENT API	PROXIMATE B	OUNDARY AND UN	BETWEEN S	SOIL TYPES	, TRANSI	TION	S MA IONS	Y BE GRA	DUAL.	_

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MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

PROBE NO. 45

		1215	W. CHEST	RILLING NUT ST., 8 GZA GeoEN	ROCKTON, MA 0240 VIRONMENTAL, INC	01 C.)		PROJECT AREA #3 OUTH HARBOR SMOUTH, NH				PROBE SHEET FILE CHKD.	1 OF T No. 14100.2
FORE CLAS INSE	SSIF	IED BY	:		ENLING ORTER		GROUND	LOCATION SURFACE ELEV TART 4/10/91	ATTON	USA CO		S OF ENG	NEERS WATER SURFACE
PROE	BE:	UN	LESS OT			OMPLISHED U				AUDUC	TER	READI	
		NU	RODS, [	DRIVEN WITH	ED, PROBING ACC 300 #WT FALLIN	G 24 INCHES	5.	DATE	TIME	WATE	ER	CASING	STABILIZATION TIME
C4 C1	NC .	SIZE:			OTHER:			, , , . · ·	<del> </del>	├	_		
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DEPT	C B A L S O			SAMPLE							R	OTD	TIM RECORDER 101
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C	V Pris is	AR SO			HESIVE SOILS	REMARKS							
		Ft Dens			Ft Density	1.	Tide +1.	0' at 1410 he	+ 1410	porica	_		
	- 4 - 10		. LOOSE	2- 4	V. SOFT	3.	Bouncing refi	usal encounte	ered at	19.8' Corps	, 3 of	0/0# Engine	ers.
13	0-30 0-50	) M	. DENSE DENSE	4- 8 8-15	M. STIFF STIFF								
, > <u> </u>	50		. DENSE	15-30 > 30		PRO	OSE LOCATION:	87950.6351(N	1)	348	584	.1987(E	)
NOTE	S:	12	STRATIF	ICATION LIN	IES REPRESENT AP	PROXIMATE B	BOUNDARY BETWEE	N SOIL TYPES	TRANS	ITIONS	W	Y BE GR	ADUAL.
GZZ	A	۷)	MAY OCCI	UR DUE TO C	THER FACTORS TH	AN THOSE PR	RESENT AT THE T	TIME MEASUREM	ENTS WE	RE MAD	)E	. OF UKU	PROBE NO. 46

	(	1215	J. CHEST	RILLING INUT ST., BI F GZA GeoEN	, INC. ROCKTON, MA 02 VIRONMENTAL, I	401 NC.)	PORTSMO PORTSMO	ROJECT REA #3 JTH HARBOR MOUTH, NH		REPORT OF BORING No. 3-47 SHEET 1 OF 1 FILE No. 14100.2 CHKD. BY JEH					
CLAS	MAN: SIFI ECTO	ED BY	: =		C. LENLING D. PORTER D. PORTER		GROUND S	OCATION AS URFACE ELEV RT 4/10	OF ENGINEERS DATUM: WATER SURFACE 4/10/91						
SAME	LER:	UN SP	LESS OT	HERWISE NOTI	ED, SAMPLER CO 140 lb. HAMME	NSISTS OF A	2" SPLIT		GRO	UNDWATE	R READI	NGS			
CASI	NG.				ED, CASING DRI			DATE	TIME	WATER	CASING	STABILIZATION TIME			
uno.		HAI	MMER FAI	LLING 24 In	·	154 00140 X	300 (b.								
CASI	NG S	IZE:	3" (NW)	)	OTHER:										
D E P T	C B L S W			SAMPLE			SAMPLE DESCRIPT	'ION		R E M					
Ť	N W	No.	PEN./ REC	DEPTH (Ft.)	BLOWS/6"		JRMISTER CLASSIFI	CATION		K					
		NO.	REC	(/(.)	5E0#370**	- BC	AMISTER CLASSIFI	CATION		_+-	24	<del></del>			
10		S-1 S-2 S-3	24/1 24/14	12'-14'	<del></del>	Medium de SAND, som Shells ch	ense, olive brown ense, olive brown silt, little G lange at 15.5° to i Rock, some fine Silt	, fine to c ravel, trac	:oarse :e	2	12'	WATER SAND & SILT			
20		S-4 C-2	3/1 60/14	18.5-19.5 19.5-20.5 20.5-21.5 21.5-21.8 21.8-22.8	3.5 min 3.5 min 50/3"-50/0" 5 min	coarse Sa	rown, fine to coa ice Gravel change rown fractured RO and and Silt		ome :o ne to	3		WEATHERED ROCK			
	-	<b> </b>		22.8-23.8											
25		<u> </u>		23.8-24.8											
				24.8-25.8											
		ļ		25.8-26.8	4.5 min						26.8' _				
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GRANULAR SOILS COHESIVE SOILS Blows/ft Density Blows/ft Density 1. Tide +6.3' at 1033 hours, 1.3' at 1342 hours (end of drilling).  O- 4 V. LOOSE < 2 V. SOFT 3. S-4 had about 3" of drill cuttings in top of sample.											drilling).				
11	4 - 10 0-30 0-50 50	M	LOOSE LOOSE DENSE DENSE DENSE	<ul> <li>2 2</li> <li>2 4</li> <li>4 8</li> <li>8 - 15</li> <li>15 - 30</li> <li>30</li> </ul>	V. SOFT SOFT M. STIFF STIFF V. STIFF HARD	4. Fore	ar depth (2° at ) had about 3" of eman reports diff h core runs were ING LOCATION: 8	redrilled	where sp	borehole boon sam	e clean o ples had	of cuttings. I been taken.			
NOTE	S:	1)	STRATIF	CATION LINE	S REPRESENT A	PPROXIMATE !	BOUNDARY BETWEEN	SOIL TYPES	TRANSI	TIONS M	Y BE GR	ADUAL.			
<u>,</u>	OTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL. 2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE														
GZ2	•											BORING No.B-47			

	GZA DRILLING, INC.  1215 W. CHESTNUT ST., BROCKTON, MA 02401 (A DIVISION OF GZA GEOENVIRONMENTAL, INC.)						PROJECT AREA #3 PORTSMOUTH HARBOR PORTSMOUTH, NH					PROBE NO. 49 SHEET 1 OF 1 FILE No. 14100.2 CHKD. BY JEH			
CLA	EMAN: SSIFI PECTO	ED BY:	_		ENLING ORTER		BORING LOCATION AS PER USA CORPS OF ENGINEERS GROUND SURFACE ELEVATION DATUM: WATER SURFACE DATE START 4/09/91 DATE END 4/09/91								
PRO	BE:	UNL NW	ESS OTH	HERWISE NOT	ED, PROBING ACT	COMPLISHED	USING			GRO	DUNDWAT	ER READI	NGS		
			•	· · · · · ·					DATE	TIME	WATER	CASING	STABILIZATION TIME		
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T	IN W		PEN./	DEPTH							M K	STR	ATUM DESCRIPTION		
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GR BLo	ANUL/	AR SOIL	.s tv		HESIVE SOILS Ft Density	REMARKS	3: Tide	+1-3/	at 1230 ho	MLS.					
0-	4		LOOSE	< 2	V. SOFT	- 2. 3.	Depth Bounci	of water	at 1230 ho 15.3' at 1 il encounte	230 hour	rs. 15.7'.	50/0"			
11	-10 0-30		LOOSE	2- 4 4- 8	SOFT M. STIFF				923.0624(N		•	4.0582(E)	,		
30	0-50 50	٧.	DENSE DENSE	8-15 15-30	V. STIFF										
NOTE	<u> </u>	13 6	TDATIET	> 30	HARD	PROYIMATE S	אמווחטים.	RETUEEN 4	SOLL TABLE	TDANET	TIONS	AY DE CO	ADUAL		
		ŻŚ W	ATER LE	VEL READING	ES REPRESENT AP GS HAVE BEEN MA THER FACTORS TH	DE AT TIMES AN THOSE PE	S AND UNI RESENT A	DER CONDIT	TIONS STATE	ED, FLUC	TUATION E MADE	IS OF GRO	UNDWATER		
GZ2	1												PROBE NO. 49		

		1215	. CHEST	NUT ST B	ROCKTON, MA 02	PROJECT AREA #3 PORTSMOUTH HARBOR PORTSMOUTH, NH					PROBE NO. 50 SHEET 1 OF T FILE NO. 14100.2 CHKD. BY JEH				
CLA	MAN:	ED BY		C. L	ENLING		l G	BORING LOCATION AS PER USA CORPS OF E					S OF ENG		
PRO			LESS OTH			COMPLISHED	<u> </u>						READI		_
		NW	ROOS, D	RIVEN WITH	ED, PROBING AS 300 #WT FALL	NG 24 INCHE	s.		DATE	TIME		ER		STABILIZATION TIME	
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D E P	C B A L S O			SAMPLE								REM	QTD4	TUM DESCRIPTION	
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GR	ANUL	AR SOI t Dens	LS		HESIVE SOILS Ft Density	REMARKS	S:	+2.81							_
			LOOSE		V. SOFT	2.	. Depth o	f water	28'						
- 1	. 4 -10 0-30	M.	LOOSE DENSE	2 - 4 4 - 8	SOFT M. STIFF	:	3. Bouncing refusal encountered at 29.5'.  PROBE LOCATION: 87946.8421(N) 348523.0443(E)								
	0-50 50	٧.	DENSE DENSE	8-15 15-30 > 30	STIFF V. STIFF HARD		UBE LOCAT	10N: 87	740.8421(N	5485	04. دے	·45(l	=)		
NOTE	s:	1)	STRATIF			APPROXIMATE	BOUNDARY E	ETVEEN	SOIL TYPES	TRANSI	TION	S MA	Y BE GR	ADUAL.	_
GZ:	A	2) (	MATER LE	VEL READIN UR DUE TO C	IES REPRESENT A IGS HAVE BEEN P OTHER FACTORS	MADE AT TIME THAN THOSE P	S AND UNDE RESENT AT	R COND! THE TIM	TIONS STATI E MEASUREMI	ED, FLUC ENTS WER	TUAT RE MA	IONS DE	OF GRO	UNDWATER  PROBE NO. 50	_

	GZA DRILLING, INC.  1215 W. CHESTNUT ST., BROCKTON, MA 02401 (A DIVISION OF GZA GEOENVIRONMENTAL, INC.)								PROJECT AREA #3 PORTSMOUTH HARBOR PORTSMOUTH, NH				PROBE NO. 51 SHEET 1 OF 1 FILE No. 14100.2 CHKD. BY JEH		
FOR CLA INS	SS	AN:	ED BY		C. (	ENLING PORTER			BORING LOCATION AS PER USA CORPS OF ENGINEERS GROUND SURFACE ELEVATION DATUM: WATER SI DATE START 4/9/91 DATE END 4/9/9T						GINEERS WATER SURFACE
PRO	ΒE	:	UN	LESS OTH	ERWISE NO	TED, PROBING ACC	COMPLISHED	USING		T -		CUNDW			
			NU	RODS, D	RIVEN WIT	H 300 #WT FALLIN	IG 24 INCHE	s.		DATE	TIME		TER	CASING	STABILIZATION TIME
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			AR SOI t Dens			DHESIVE SOILS /ft Density	REMARKS	Tide	+1.01	at 1256 ho	urs.				
0- 4 V. LOOSE								<ol> <li>Depth of water 21.9° at 1256 hours.</li> <li>Bouncing refusal encountered at 21.9°, 20/04. No soil encountered.</li> <li>PROBE LOCATION: 87919.8077(N) 348485.1981(E)</li> </ol>						soil	
NOTE	s:	-	1) (	TRATIFI	CATION LIN	IES REPRESENT AP	PROXIMATE E	SOUNDARY S AND UN	BETWEEN	SOIL TYPES,	TRANSI	TIONS	S MA	Y BE GRA	ADUAL. UNDWATER
GZ2	A		1	MY OCCU	R DUE TO	THER FACTORS TH	AN THOSE P	RESENT	T THE TIM	E MEASUREME	nts wer	E MAI	DE		PROBE NO. 51

	(			RILLING TNUT ST., B F GZA GeoEN	ROCKTON, MA 024 VIRONMENTAL, IN	01 IC.)	PROJECT AREA #3  PORTSMOUTH HARBOR  PORTSMOUTH, NH				PROBE NO. 52 SHEET 1 OF T FILE NO. 14100.2 CHKD. BY JEH			
CLA	EMAN SSIF PECT	IED BY	:		ENLING HAFFNER		BORING LO GROUND SU DATE STAI	OCATION URFACE ELE RT 4/5/91	VATION	USA CORF	S OF ENG	GINEERS WATER SURFACE 5/91		
PRO	BE:	UN	LESS OT	HERWISE NOT	ED, PROBING ACT	OMPLISHED USIN	G		GRO	UNDWATE	R READI	NGS		
		NW	KUUS,	DKIAEN MILH	SOU #WT FALLIF	IG 24 INCHES.		DATE	TIME	WATER	CASING	STABILIZATION TIME		
CAS	ING S	SIZE:		•	OTHER:									
P	C B	T		SAMPLE				l		RE		<u> </u>		
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30				29.2-30.2										
										3	30.2′ -	REFUSAL		
												ELOSE		
		AR SOI t Dens			HESIVE SOILS Ft Density	REMARKS:	de +1.8′	204						
	- 4 -10	٧.	LOOSE	< 2 2- 4	V. SOFT		pth of water		arad se 3	tn 2/				
1 3	0-30 0-50	M.	DENSE DENSE	4- 8 8-15	M. STIFF STIFF	į.	<ol> <li>Bouncing refusal encountered at 30.2/</li> <li>PROBE LOCATION: 87943.0468(N) 348482.2153(E)</li> </ol>							
	50	٧.	DENSE	15-30 > 30	V. STIFF			_ , - , ( )			- •			
NOTE	s:	1)	STRATIF	CATION LINE	ES REPRESENT AP	PROXIMATE BOUND	DARY BETWEEN	SOIL TYPES	TRANSI	TIONS M	Y BE GR	ADUAL.		
NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL. 2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE  PROBE NO. 52											PROBE NO. 52			

				RILLING TNUT ST., B F GZA GeOEN	ROCKTON, MA 024 VIRONMENTAL, IN	01 c.) <u> </u>	A PORTSMO	ROJECT REA #3 JTH HARBOR MOUTH, NH		PROBE NO. 53 SHEET 1 OF T FILE NO. 14100.2 CHKD. BY JEH			
CLA	EMAN SSIF PECT	ED BY	:		ENLING ORTER		BORING L GROUND S DATE STA	OCATION URFACE ELE RT 4/9/91	VATION	USA CORI	PS OF ENG DATUM:	GINEERS WATER SURFACE 19/91	
PRO	BE:	UN	LESS OT	HERWISE NOT	ED, PROBING ACC	OMPLISHED USING		GROUNDWATER READINGS					
		NU	RODS,	DRIVEN WITH	300 #HT FALLIN	G 24 INCHES.		DATE	TIME	WATER	τ	STABILIZATION TIME	
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GR Blo	ANUL WS/F	AR SOI t Dens	LS		HESIVE SOILS Ft Density	REMARKS: 1. Tide 2. Dept	+0.7'	at 1317 he	ours.				
4	- 4 - 10		LOOSE	2- 4	V. SOFT SOFT	1	ncing refus				80/0 <b>"</b> .		
3	0-30 0-50 50		DENSE DENSE DENSE	8-15	M. STIFF STIFF V. STIFF HARD		CATION: 87			-			
NOTE	s:	1) (	STRATIF	ICATION LIN	ES REPRESENT API	PROXIMATE BOUNDADE AT TIMES AND AN THOSE PRESENT	RY BETWEEN UNDER CONDI	SOIL TYPES	, TRANSI	TIONS M	AY BE GR	ADUAL. JNDWATER	
GZ:	A	-, j	MAY OCC	UR DUE TO O	THER FACTORS TH	AN THOSE PRESENT	AT THE TIM	E MEASUREM	ents Wer	E MADE		PROBE NO. 53	

	GZA DRILLING, INC.  1215 W. CHESTNUT ST., BROCKTON, MA 02401 (A DIVISION OF GZA GEOENVIRONMENTAL, INC.)								PROJECT AREA #3 PORTSMOUTH HARBOR PORTSMOUTH, NH					PROBE NO. 54 SHEET 1 OF T FILE NO. 14100.2 CHKD. 8Y JEH		
FORI CLAS INSI	SSI	FI	ED BY	:		ENLING ORTER				OCATION URFACE ELEV RT <u>4/9/91</u>	/ATION _	USA (			INEERS WATER SURFACE 9/91	
PROE	BE:	-	UNI	LESS OTH	ERWISE NOT	ED, PROBING ACC	COMPLISHED I	JSING			GRO	MONUC	ATER	READI	NGS	
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Blo	WS/	/Ft	Dens	ity		HESIVE SOILS 'Ft Density	REMARKS 1. 2.	Tide Depth	+2.3'	at 1145 ho 26.5' at 1	ours.	rs.				
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10 30	)-3 )-5 50	0		DENSE DENSE DENSE	4- 8 8-15 15-30 > 30	M. STIFF Stiff		not h	old.	: NOT RECO						
NOTE	s:		1) 5	TRATIFI	CATION LIN	ES REPRESENT AP GS HAVE BEEN MA THER FACTORS TH	PROXIMATE E	CUNDARY	BETWEEN	SOIL TYPES	TRANSI	TION	S MA	Y BE GRA	ADUAL.	
GZ1	1		-/ ;	AY OCCU	R DUE TO	THER FACTORS TH	AN THOSE P	RESENT A	T THE TIM	E MEASUREN	ENTS WER	E MA	DE	OI GROC	PROBE NO. 54	

	C.	_			ROCKTON, MA 024	601 (C.)	PROJECT AREA #3 PORTSMOUTH HARBOR PORTSMOUTH, NH				PROBE NO. 54 SHEET 1 OF 1 FILE NO. 14100.2 CHKD. BY JEH		
CLAS	MAN:	ED BY		C. L	ENLING		BOR I NG	LOCATION SURFACE ELE TART 4/9/91	VATION	USA CO	RPS OF EN	GINEERS WATER SURFACE	
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		NW	RODS, d	RIVEN WIT	FED, PROBING ACC 1 300 #⊎T FALLIN	G 24 INCHES.		DATE	TIME	WATE	<del></del>	STABILIZATION TIME	
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DEP	A L S O			SAMPLE						E	1	ATUM DESCRIPTION	
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GF RI	RANUL.	AR SO! t Dens	LS		OHESIVE SOILS /Ft Density	REMARKS:	Tide +2.	3' at 1145 h	nours.		•		
0	- 4		. LOOSE	< 2	V. SOFT	2.	Depth of wat	er 26.5' at	1145 hou				
1	-10 0-30 0-50	М	LOOSE DENSE DENSE	4-8	SOFT M. STIFF STIFF	3.	Moved off ho not hold.	ile Without o	oing pro	oce bec	ause boa	t anchors would	
>	50		. DENSE		O V. STIFF		PROBE LOCATI	ON: NOT REC	CORDED				
NOTE		1)	STRATIF		NES REPRESENT AI	PPROXIMATE BE	OUNDARY BETWEE	EN SOIL TYPE	S, TRANS	ITIONS	MAY BE G	RADUAL.	
GZ.	A	۷)	MAY OCC	UR DUE TO	OTHER FACTORS T	HAN THOSE PRI	ESENT AT THE	TIME MEASURE	MENTS WE	RE MAD	ing or un	PROSE NO54	